

SEQUENCE LISTING

<110> Institut Pasteur, Monash University, University of Tennessee,
Austin University, Biotica Technology Limited
Stinear, Timoyhy P
Cole, Stewart T
Leadlay, Peter F
Small, Pamela LC
Johnson, Paul DR
Jenkin, Grant A
Davis, John K
Haydock, Stephen F

<120> THE MYCOLACTONE LOCUS: AN ASSEMBLY LINE FOR PRODUCING NOVEL
POLYKETIDES, THERAPEUTIC AND PROPHYLACTIC USES

<130> D 22 869

<150> US 60/519 864

<151> 2003-11-14

<160> 12

<170> PatentIn version 3.3

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<210> 4

<211> 987

<212> DNA

<213> *Mycobacterium ulcerans*

<220>

<223> Nucleic acid sequence of the coding sequence of mup045 gene.

<400> 4

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atttccttca ccgaagccga tgagccggct acagtcatgg ccacgcgcgc tgcaaccgaa 180
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987

<210> 5

<211> 1314

<212> DNA

<213> Mycobacterium ulcerans

<220>

<223> Nucleic acid sequence of the coding sequence of mup053 gene.

<400> 5

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cgggcgccat tttgcgatga attgagggca atcgccctg tgggtgcgag ctacggcacc 180

cacctcgtcg ttagtcatgc catcgcccat gaactgcttc ggtccgaaga cttcgaagtg 240

gtctcgtcgt gatcgaactt gccggcacca atgcgtggc tagagcggcg cactcgggac 300

gatacgcccc atctgctgct gccgctgctg ttgctggccg ttgagccggc gaatcacacg 360

cgctatcgca aggcagtgtc ctcggtgttc acgccgaaag cagtagccgg attacgcgat 420

catgtcgaag agactgcgtc ggcgctgttg gatcagctca ccgaccaggc tagtgcgctc 480

gacatcatag cccgctactg ctcccagctg ccggtcggcg tcatttgtga catcttaggc 540

gtgcccagtc gagaccgaaa ccgtgttctc aagtccggtc agctggcggg gccctgcttg 600

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<210> 6

<211> 906

<212> DNA

<213> Mycobacterium ulcerans

<220>

<223> Nucleic acid sequence of the coding sequence of mup038 gene.

<400> 6

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<210> 7

<211> 16990

<212> PRT

<213> Mycobacterium ulcerans

<220>

<223> Amino acid sequence of the protein encoded by mlsA1 gene.

<400> 7

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20           25           30

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Ser Asp Pro Asp Ala Leu Trp Ala Leu Leu Arg Asp Gly Ile Ser Val
35           40           45

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Val Asp Glu Ile Pro Ser Ala Arg Trp Asn Leu Asp Gly Leu Val Ala
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His Arg Leu Thr Asp Glu Gln Arg Ser Ala Leu Arg His Gly Ala Phe
65 70 75 80

Leu Asp Asp Val Glu Gly Phe Asp Ala Ala Phe Phe Gly Ile Asn Pro
85 90 95

Ser Glu Ala Gly Ser Met Asp Pro Gln Gln Arg Leu Met Leu Glu Leu
100 105 110

Thr Trp Ala Ala Leu Glu Asp Ala Arg Ile Val Pro Glu His Leu Ser
115 120 125

Gly Ser Ser Ser Gly Val Phe Thr Gly Ala Met Ser Asp Asp Tyr Thr
130 135 140

Thr Ala Val Thr Tyr Arg Ala Ala Met Thr Ala His Thr Phe Ala Gly
145 150 155 160

Thr His Arg Ser Leu Ile Ala Asn Arg Val Ser Tyr Thr Leu Gly Leu
165 170 175

Arg Gly Pro Ser Leu Val Ile Asp Thr Gly Gln Ser Ser Ser Leu Val
180 185 190

Ala Val His Val Ala Met Glu Ser Leu Arg Arg Glu Glu Thr Ser Leu
195 200 205

Ala Ile Ala Gly Gly Ile His Leu Asn Leu Ser Leu Ala Ala Ala Leu
210 215 220

Ser Ala Ala His Phe Gly Ala Leu Ser Pro Asp Gly Arg Cys Tyr Thr
225 230 235 240

Phe Asp Ala Arg Ala Asn Gly Tyr Val Arg Gly Glu Gly Gly Gly Val
245 250 255

Val Val Leu Lys Arg Leu Asn Asp Ala Leu Ala Asp Gly Asn His Ile
260 265 270

Tyr Cys Val Ile Arg Gly Ser Ser Val Asn Asn Asp Gly Ala Thr Gln
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Ala Tyr Glu Arg Ala Glu Ile Asp Pro Ser Glu Val Gln Tyr Val Glu
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Leu His Ser Val Phe Gly Thr Ser Thr Val Pro Arg Ser Pro Leu Leu
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Val Gly Ser Ile Lys Thr Asn Ile Gly His Leu Glu Gly Ala Ala Gly
 355 360 365

Ile Leu Gly Leu Ile Lys Thr Ala Leu Ala Val His His Arg Gln Leu
 370 375 380

Pro Pro Ser Leu Asn Tyr Thr Val Pro Asn Pro Lys Ile Pro Leu Glu
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Gln Leu Gly Leu Arg Val Gln Thr Thr Leu Ser Glu Trp Pro Asp Leu
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Asp Lys Pro Leu Thr Ala Gly Val Ser Ser Phe Ser Met Gly Gly Thr
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Asn Ala His Leu Ile Leu Gln Gln Pro Pro Thr Pro Asp Thr Thr Gln
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Thr Pro Asn Pro Thr Thr Gly Ser Asp Pro Ala Val Gly Ser Asp Pro
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Ala Val Gly Val Leu Val Trp Pro Leu Ser Ala Arg Ser Ala Pro Gly
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Leu Ser Ala Gln Ala Ala Arg Leu Tyr Gln His Leu Ser Ala His Pro
 485 490 495

Asp Leu Asp Pro Ile Asp Val Ala His Ser Leu Ala Thr Thr Arg Ser
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His His Pro His Arg Ala Thr Ile Thr Thr Ser Ile Glu His His Ser
 515 520 525

Glu Asn Asn His Asp Thr Thr Asp Ala Leu Ala Ala Leu His Ala Leu
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Ala Asn Asn Gly Thr His Pro Leu Leu Ser Arg Gly Leu Leu Thr Pro
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Gln Gly Pro Gly Lys Thr Val Phe Val Phe Pro Gly Gln Gly Ser Gln
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Tyr Pro Gly Met Gly Ala Asp Leu Tyr Arg Gln Phe Pro Val Phe Ala
 580 585 590

His Ala Leu Asp Glu Val Ala Ala Ala Leu Asn Pro His Leu Asp Val
 595 600 605

Ala Leu Leu Glu Val Met Phe Ser Gln Gln Asp Thr Ala Met Ala Gln
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Leu Leu Asp Gln Thr Phe Tyr Ala Gln Pro Ala Leu Phe Ala Leu Gly
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Thr Ala Leu His Arg Leu Phe Thr His Ala Gly Ile His Pro Asp Tyr
 645 650 655

Leu Leu Gly His Ser Ile Gly Glu Leu Thr Ala Ala Tyr Ala Ala Gly
 660 665 670

Val Leu Ser Leu Gln Asp Ala Ala Thr Leu Val Thr Ser Arg Gly Arg
 675 680 685

Leu Met Gln Ser Cys Thr Pro Gly Gly Thr Met Leu Ala Leu Gln Ala
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Ser Glu Ala Glu Val Gln Pro Leu Leu Glu Gly Leu Asp His Ala Val
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Ser Ile Ala Ala Ile Asn Gly Ala Thr Ser Ile Val Leu Ser Gly Asp
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His Asp Ser Leu Glu Gln Ile Gly Glu His Phe Ile Thr Gln Asp Arg
 740 745 750

Arg Thr Thr Arg Leu Gln Val Ser His Ala Phe His Ser Pro His Met
 755 760 765

Asp Pro Ile Leu Glu Gln Phe Arg Gln Ile Ala Ala Gln Leu Thr Phe

770

775

780

Ser Ala Pro Thr Leu Pro Ile Leu Ser Asn Leu Thr Gly Gln Ile Ala
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Arg His Asp Gln Leu Ala Ser Pro Asp Tyr Trp Thr Gln Gln Leu Arg
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Ile Thr Asp Thr Val Glu Gln Ala Gly Gly Gly Gly Ala Ala Val Pro
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Cys Gln Ala Arg Pro Leu Thr Leu Pro Thr Tyr Ala Phe Gln His Gln
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Arg Tyr Trp Leu Leu Pro Thr Ala Gly Asp Phe Ser Gly Ala Asn Thr
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His Ala Met His Pro Leu Leu Asp Thr Ala Thr Glu Leu Ala Glu Asn
 930 935 940

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 945 950 955 960

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 965 970 975

Phe Val Glu Leu Ala Leu His Val Ala Asp Arg Ala Gly Tyr Ser Ser
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Val Asn Glu Leu Ile Val His Thr Pro Leu Leu Leu Ala Gly His Asp
 995 1000 1005

Thr Ala Asp Leu Gln Ile Thr Val Thr Asp Thr Asp Asp Met Gly

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Ser Ala Val Leu Thr Ala Gln 1055	Thr Thr Asp His Asn 1060	His Leu Pro 1065
Leu Thr Pro Val Pro Trp Pro 1070	Pro Pro Gly Thr Ala 1075	Ala Ile Glu 1080
Val Asp Asp Phe Tyr Asp Asp 1085	Leu Ala Ala Gln Gly 1090	Tyr Asn Tyr 1095
Gly Pro Thr Phe Gln Gly Val 1100	Gln Arg Ile Trp Arg 1105	Asp His Ala 1110
Thr Pro Asp Val Ile Tyr Ala 1115	Glu Val Glu Leu Pro 1120	Glu Asp Thr 1125
Asp Ile Asp Gly Tyr Gly Ile 1130	His Pro Ala Leu Phe 1135	Asp Ala Ala 1140
Leu His Pro Leu Leu Ala Leu 1145	Thr Gln Pro Pro Thr 1150	Asn Asp Thr 1155
Asp Asp Thr Asn Thr Ala Asp 1160	Thr Gly Asp Gln Val 1165	Arg Leu Pro 1170
Tyr Ala Phe Thr Gly Ile Ser 1175	Leu His Ala Thr His 1180	Ala Thr Arg 1185
Leu Arg Val Arg Leu Thr Arg 1190	Thr Gly Ala Asp Ala 1195	Ile Thr Val 1200
His Thr Ser Asp Thr Thr Gly 1205	Ala Pro Val Ala Ile 1210	Ile Asp Ser 1215
Leu Ile Thr Arg Pro Leu Thr 1220	Thr Ala Thr Gly Ser 1225	Ala Pro Ala 1230
Thr Thr Ala Ala Gly Leu Leu	His Leu Ser Trp Pro	Pro His Pro

1235	1240	1245
Asp Thr Thr Thr Asp Thr Asp Thr Asp Thr Asp Ala Leu Arg Tyr 1250 1255 1260		
Gln Val Ile Ala Glu Pro Thr Gln Gln Leu Pro Arg Tyr Leu His 1265 1270 1275		
Asp Leu His Thr Ser Thr Asp Leu His Thr Ser Thr Thr Glu Ala 1280 1285 1290		
Asp Val Val Val Trp Pro Val Pro Val Pro Ser Asn Glu Glu Leu 1295 1300 1305		
Gln Ala His Gln Ala Ser Asp Thr Ala Val Ser Ser Arg Ile His 1310 1315 1320		
Thr Leu Thr Arg Gln Thr Leu Thr Val Val Gln Asp Trp Leu Thr 1325 1330 1335		
His Pro Asp Thr Thr Gly Thr Arg Leu Val Ile Val Thr Arg His 1340 1345 1350		
Gly Val Ser Thr Ser Ala His Asp Pro Val Pro Asp Leu Ala His 1355 1360 1365		
Ala Ala Val Trp Gly Leu Ile Arg Ser Ala Gln Asn Glu His Pro 1370 1375 1380		
Gly Arg Phe Thr Leu Leu Asp Thr Asp Asp Asn Thr Asn Ser Asp 1385 1390 1395		
Thr Leu Thr Thr Ala Leu Thr Leu Pro Thr Arg Glu Asn Gln Leu 1400 1405 1410		
Ala Ile Arg Arg Asp Thr Ile His Ile Pro Arg Leu Thr Arg His 1415 1420 1425		
Ser Ser Asp Gly Ala Leu Thr Ala Pro Val Val Val Asp Pro Glu 1430 1435 1440		
Gly Thr Val Leu Ile Thr Gly Gly Thr Gly Thr Leu Gly Ala Leu 1445 1450 1455		
Phe Ala Glu His Leu Val Ser Ala His Gly Val Arg His Leu Leu		

1460	1465	1470
Leu Thr Ser Arg Arg Gly Pro Gln Ala His Gly Ala Thr Asp Leu		
1475	1480	1485
Gln Gln Arg Leu Thr Asp Leu Gly Ala His Val Thr Ile Thr Ala		
1490	1495	1500
Cys Asp Ile Ser Asp Pro Glu Ala Leu Ala Ala Leu Val Asn Ser		
1505	1510	1515
Val Pro Thr Gln His Arg Leu Thr Ala Val Val His Thr Ala Ala		
1520	1525	1530
Val Leu Ala Asp Thr Pro Val Thr Glu Leu Thr Gly Asp Gln Leu		
1535	1540	1545
Asp Gln Val Leu Ala Pro Lys Ile Asp Ala Ala Trp Gln Leu His		
1550	1555	1560
Gln Leu Thr Tyr Glu His Asn Leu Ser Ala Phe Ile Met Phe Ser		
1565	1570	1575
Ser Met Ala Gly Met Ile Gly Ser Pro Gly Gln Gly Asn Tyr Ala		
1580	1585	1590
Ala Ala Asn Thr Ala Leu Asp Ala Leu Ala Asp Tyr Arg His Arg		
1595	1600	1605
Leu Gly Leu Pro Ala Thr Ser Leu Ala Trp Gly Tyr Trp Gln Thr		
1610	1615	1620
His Thr Gly Leu Thr Ala His Leu Thr Asp Val Asp Leu Ala Arg		
1625	1630	1635
Met Thr Arg Leu Gly Leu Met Pro Ile Ala Thr Ser His Gly Leu		
1640	1645	1650
Ala Leu Phe Asp Ala Ala Leu Ala Thr Gly Gln Pro Val Ser Ile		
1655	1660	1665
Pro Ala Pro Ile Asn Thr His Thr Leu Ala Arg His Ala Arg Asp		
1670	1675	1680
Asn Thr Leu Ala Pro Ile Leu Ser Ala Leu Ile Thr Thr Pro Arg		
1685	1690	1695

Arg Arg Ala Ala Ser Ala Ala Thr Asp Leu Ala Ala Arg Leu Asn
1700 1705 1710

Gly Leu Ser Pro Gln Gln Gln Gln Gln Thr Leu Ala Thr Leu Val
1715 1720 1725

Ala Ala Ala Thr Ala Thr Val Leu Gly His His Thr Pro Glu Ser
1730 1735 1740

Ile Ser Pro Ala Thr Ala Phe Lys Asp Leu Gly Ile Asp Ser Leu
1745 1750 1755

Thr Ala Leu Glu Leu Arg Asn Thr Leu Thr His Asn Thr Gly Leu
1760 1765 1770

Asn Leu Ser Ser Thr Leu Ile Phe Asp His Pro Thr Pro His Ala
1775 1780 1785

Val Ala Glu His Leu Leu Glu Gln Ile Pro Gly Ile Gly Ala Leu
1790 1795 1800

Val Pro Ala Pro Val Val Ile Ala Ala Gly Arg Thr Glu Glu Pro
1805 1810 1815

Val Ala Val Val Gly Met Ala Cys Arg Phe Pro Gly Gly Val Ala
1820 1825 1830

Ser Ala Asp Gln Leu Trp Asp Leu Val Ile Ala Gly Arg Asp Val
1835 1840 1845

Val Gly Asn Phe Pro Ala Asp Arg Gly Trp Asp Val Glu Gly Leu
1850 1855 1860

Phe Asp Pro Asp Pro Asp Ala Val Gly Lys Thr Tyr Thr Arg Tyr
1865 1870 1875

Gly Ala Phe Leu Asp Asp Ala Ala Gly Phe Asp Ala Gly Phe Phe
1880 1885 1890

Gly Ile Ser Pro Arg Glu Ala Arg Ala Met Asp Pro Gln Gln Arg
1895 1900 1905

Leu Leu Leu Glu Val Cys Trp Glu Ala Leu Glu Thr Ala Gly Ile
1910 1915 1920

Pro Ala His Thr Leu Ala Gly Thr Ser Thr Gly Val Phe Val Gly
1925 1930 1935

Ala Trp Ala Gln Ser Tyr Gly Ala Thr Asn Ser Asp Asp Ala Glu
1940 1945 1950

Gly Tyr Ala Met Thr Gly Gly Ala Thr Ser Val Met Ser Gly Arg
1955 1960 1965

Ile Ala Tyr Thr Leu Gly Leu Glu Gly Pro Ala Ile Thr Val Asp
1970 1975 1980

Thr Ala Cys Ser Ser Ser Leu Val Ala Ile His Leu Ala Cys Gln
1985 1990 1995

Ser Leu Arg Asn Asn Glu Ser Gln Leu Ala Leu Ala Gly Gly Val
2000 2005 2010

Thr Val Met Ser Thr Pro Ala Val Phe Thr Asp Phe Ser Arg Gln
2015 2020 2025

Arg Gly Leu Ala Pro Asp Gly Arg Cys Lys Ala Phe Ala Ala Thr
2030 2035 2040

Ala Asp Gly Thr Gly Trp Gly Glu Gly Ala Ala Val Leu Val Leu
2045 2050 2055

Glu Arg Leu Ser Glu Ala Arg Arg Asn Asn His Pro Val Leu Ala
2060 2065 2070

Ile Val Ala Gly Ser Ala Ile Asn Gln Asp Gly Ala Ser Asn Gly
2075 2080 2085

Leu Thr Ala Pro His Gly Pro Ser Gln Gln Arg Val Ile Asn Gln
2090 2095 2100

Ala Leu Ala Asn Ala Gly Leu Thr His Asp Gln Val Asp Ala Val
2105 2110 2115

Glu Ala His Gly Thr Gly Thr Thr Leu Gly Asp Pro Ile Glu Ala
2120 2125 2130

Gly Ala Leu His Ala Thr Tyr Gly His His His Thr Pro Asp Gln
2135 2140 2145

Pro Leu Trp Leu Gly Ser Ile Lys Ser Asn Ile Gly His Thr Gln
2150 2155 2160

Ala Ala Ala Gly Ala Ala Gly Val Val Lys Met Ile Gln Ala Ile
2165 2170 2175

Thr His Ala Thr Leu Pro Ala Thr Leu His Val Asp Gln Pro Ser
2180 2185 2190

Pro His Ile Asp Trp Ser Ser Gly Thr Val Arg Leu Leu Thr Glu
2195 2200 2205

Pro Ile Gln Trp Pro Asn Thr Asp His Pro Arg Thr Ala Ala Val
2210 2215 2220

Ser Ser Phe Gly Ile Ser Gly Thr Asn Ala His Leu Ile Leu Gln
2225 2230 2235

Gln Pro Pro Thr Pro Asp Thr Thr Gln Thr Pro Asn Pro Thr Thr
2240 2245 2250

Gly Ser Asp Pro Ala Val Gly Ser Asp Ser Ala Val Gly Ser Asp
2255 2260 2265

Pro Ala Val Gly Val Leu Val Trp Pro Leu Ser Ala Arg Ser Ala
2270 2275 2280

Pro Gly Leu Ser Ala Gln Ala Ala Arg Leu Tyr Gln His Leu Ser
2285 2290 2295

Ala His Pro Asp Leu Asp Pro Ile Asp Val Ala His Ser Leu Ala
2300 2305 2310

Thr Thr Arg Ser His His Pro His Arg Ala Thr Ile Thr Thr Ser
2315 2320 2325

Ile Glu His His Ser Glu Asn Asn His Asp Thr Thr Asp Ala Leu
2330 2335 2340

Ala Ala Leu His Ala Leu Ala Asn Asn Gly Thr His Pro Leu Leu
2345 2350 2355

Ser Arg Gly Leu Leu Thr Pro Gln Gly Pro Gly Lys Thr Val Phe
2360 2365 2370

Val Phe Pro Gly Gln Gly Ser Gln Tyr Pro Gly Met Gly Ala Asp
2375 2380 2385

Leu Tyr Arg Gln Phe Pro Val Phe Ala His Ala Leu Asp Glu Val
2390 2395 2400

Ala Ala Ala Leu Asn Pro His Leu Asp Val Ala Leu Leu Glu Val
2405 2410 2415

Met Phe Ser Gln Gln Asp Thr Ala Met Ala Gln Leu Leu Asp Gln
2420 2425 2430

Thr Phe Tyr Ala Gln Pro Ala Leu Phe Ala Leu Gly Thr Ala Leu
2435 2440 2445

His Arg Leu Phe Thr His Ala Gly Ile His Pro Asp Tyr Leu Leu
2450 2455 2460

Gly His Ser Ile Gly Glu Leu Thr Ala Ala Tyr Ala Ala Gly Val
2465 2470 2475

Leu Ser Leu Gln Asp Ala Ala Thr Leu Val Thr Ser Arg Gly Arg
2480 2485 2490

Leu Met Gln Ser Cys Thr Pro Gly Gly Thr Met Leu Ala Leu Gln
2495 2500 2505

Ala Ser Glu Ala Glu Val Gln Pro Leu Leu Glu Gly Leu Asp His
2510 2515 2520

Ala Val Ser Ile Ala Ala Ile Asn Gly Ala Thr Ser Ile Val Leu
2525 2530 2535

Ser Gly Asp His Asp Ser Leu Glu Gln Ile Gly Glu His Phe Ile
2540 2545 2550

Thr Gln Asp Arg Arg Thr Thr Arg Leu Gln Val Ser His Ala Phe
2555 2560 2565

His Ser Pro His Met Asp Pro Ile Leu Glu Gln Phe Arg Gln Ile
2570 2575 2580

Ala Ala Gln Leu Thr Phe Ser Ala Pro Thr Leu Pro Ile Leu Ser
2585 2590 2595

Asn Leu Thr Gly Gln Ile Ala Arg His Asp Gln Leu Ala Ser Pro

2600		2605		2610
Asp Tyr Trp Thr Gln Gln Leu Arg Asn Thr Val Arg Phe His Asp				
2615		2620		2625
Thr Val Ala Ala Leu Leu Gly Ala Gly Glu Gln Val Phe Leu Glu				
2630		2635		2640
Leu Ser Pro His Pro Val Leu Thr Gln Ala Ile Thr Asp Thr Val				
2645		2650		2655
Glu Gln Ala Gly Gly Gly Gly Ala Ala Val Pro Ala Leu Arg Lys				
2660		2665		2670
Asp Arg Pro Asp Ala Val Ala Phe Ala Ala Ala Leu Gly Gln Leu				
2675		2680		2685
His Cys His Gly Ile Ser Pro Ser Trp Asn Val Leu Tyr Cys Gln				
2690		2695		2700
Ala Arg Pro Leu Thr Leu Pro Thr Tyr Ala Phe Gln His Gln Arg				
2705		2710		2715
Tyr Trp Leu Leu Pro Thr Ala Gly Asp Phe Ser Gly Ala Asn Thr				
2720		2725		2730
His Ala Met His Pro Leu Leu Asp Thr Ala Thr Glu Leu Ala Glu				
2735		2740		2745
Asn Arg Gly Trp Val Phe Thr Gly Arg Ile Ser Pro Arg Thr Gln				
2750		2755		2760
Pro Trp Leu Asn Glu His Ala Val Glu Ser Ala Val Leu Phe Pro				
2765		2770		2775
Asn Thr Gly Phe Val Glu Leu Ala Leu His Val Ala Asp Arg Ala				
2780		2785		2790
Gly Tyr Ser Ser Val Asn Glu Leu Ile Val His Thr Pro Leu Leu				
2795		2800		2805
Leu Ala Gly His Asp Thr Ala Asp Leu Gln Ile Thr Val Thr Asp				
2810		2815		2820
Thr Asp Asp Met Gly Arg Gln Ser Leu Asn Ile His Ser Arg Pro				
2825		2830		2835

His Ile Gly His Asp Asn Thr	Thr Thr Gly Asp Glu	Gln Pro Glu
2840	2845	2850
Trp Val Leu His Ala Ser Ala	Val Leu Thr Ala Gln	Thr Thr Asp
2855	2860	2865
His Asn His Leu Pro Leu Thr	Pro Val Pro Trp Pro	Pro Pro Gly
2870	2875	2880
Thr Ala Ala Ile Glu Val Asp	Asp Phe Tyr Asp Asp	Leu Ala Ala
2885	2890	2895
Gln Gly Tyr Asn Tyr Gly Pro	Thr Phe Gln Gly Val	Gln Arg Ile
2900	2905	2910
Trp Arg Asp His Ala Thr Pro	Asp Val Ile Tyr Ala	Glu Val Glu
2915	2920	2925
Leu Pro Glu Asp Thr Asp Ile	Asp Gly Tyr Gly Ile	His Pro Ala
2930	2935	2940
Leu Phe Asp Ala Ala Leu His	Pro Leu Leu Ala Leu	Thr Gln Pro
2945	2950	2955
Pro Thr Asn Asp Thr Asp Asp	Thr Asn Thr Ala Asp	Thr Gly Asp
2960	2965	2970
Gln Val Arg Leu Pro Tyr Ala	Phe Thr Gly Ile Ser	Leu His Ala
2975	2980	2985
Thr His Ala Thr Arg Leu Arg	Val Arg Leu Thr Arg	Thr Gly Ala
2990	2995	3000
Asp Ala Ile Thr Val His Thr	Ser Asp Thr Thr Gly	Ala Pro Val
3005	3010	3015
Ala Ile Ile Asp Ser Leu Ile	Thr Arg Pro Leu Thr	Thr Ala Thr
3020	3025	3030
Gly Ser Ala Pro Ala Thr Thr	Ala Ala Gly Leu Leu	His Leu Ser
3035	3040	3045
Trp Pro Pro His Pro Asp Thr	Thr Thr Asp Thr Asp	Thr Asp Thr
3050	3055	3060

Asp	Ala	Leu	Arg	Tyr	Gln	Val	Ile	Ala	Glu	Pro	Thr	Gln	Gln	Leu
3065						3070					3075			
Pro	Arg	Tyr	Leu	His	Asp	Leu	His	Thr	Ser	Thr	Asp	Leu	His	Thr
3080						3085					3090			
Ser	Thr	Thr	Glu	Ala	Asp	Val	Val	Val	Trp	Pro	Val	Pro	Val	Pro
3095						3100					3105			
Ser	Asn	Glu	Glu	Leu	Gln	Ala	His	Gln	Ala	Ser	Asp	Thr	Ala	Val
3110						3115					3120			
Ser	Ser	Arg	Ile	His	Thr	Leu	Thr	Arg	Gln	Thr	Leu	Thr	Val	Val
3125						3130					3135			
Gln	Asp	Trp	Leu	Thr	His	Pro	Asp	Thr	Thr	Gly	Thr	Arg	Leu	Val
3140						3145					3150			
Ile	Val	Thr	Arg	His	Gly	Val	Ser	Thr	Ser	Ala	His	Asp	Pro	Val
3155						3160					3165			
Pro	Asp	Leu	Ala	His	Ala	Ala	Val	Trp	Gly	Leu	Ile	Arg	Ser	Ala
3170						3175					3180			
Gln	Asn	Glu	His	Pro	Gly	Arg	Phe	Thr	Leu	Leu	Asp	Thr	Asp	Asp
3185						3190					3195			
Asn	Thr	Asn	Ser	Asp	Thr	Leu	Thr	Thr	Ala	Leu	Thr	Leu	Pro	Thr
3200						3205					3210			
Arg	Glu	Asn	Gln	Leu	Ala	Ile	Arg	Arg	Asp	Thr	Ile	His	Ile	Pro
3215						3220					3225			
Arg	Leu	Thr	Arg	His	Ser	Ser	Asp	Gly	Ala	Leu	Thr	Ala	Pro	Val
3230						3235					3240			
Val	Val	Asp	Pro	Glu	Gly	Thr	Val	Leu	Ile	Thr	Gly	Gly	Thr	Gly
3245						3250					3255			
Thr	Leu	Gly	Ala	Leu	Phe	Ala	Glu	His	Leu	Val	Ser	Ala	His	Gly
3260						3265					3270			
Val	Arg	His	Leu	Leu	Leu	Thr	Ser	Arg	Arg	Gly	Pro	Gln	Ala	His
3275						3280					3285			

Gly Ala Thr Asp Leu Gln Gln Arg Leu Thr Asp Leu Gly Ala His
 3290 3295 3300

 Val Thr Ile Thr Ala Cys Asp Ile Ser Asp Pro Glu Ala Leu Ala
 3305 3310 3315

 Ala Leu Val Asn Ser Val Pro Thr Gln His Arg Leu Thr Ala Val
 3320 3325 3330

 Val His Thr Ala Ala Val Leu Ala Asp Thr Pro Val Thr Glu Leu
 3335 3340 3345

 Thr Gly Asp Gln Leu Asp Gln Val Leu Ala Pro Lys Ile Asp Ala
 3350 3355 3360

 Ala Trp Gln Leu His Gln Leu Thr Tyr Glu His Asn Leu Ser Ala
 3365 3370 3375

 Phe Ile Met Phe Ser Ser Met Ala Gly Met Ile Gly Ser Pro Gly
 3380 3385 3390

 Gln Gly Asn Tyr Ala Ala Ala Asn Thr Ala Leu Asp Ala Leu Ala
 3395 3400 3405

 Asp Tyr Arg His Arg Leu Gly Leu Pro Ala Thr Ser Leu Ala Trp
 3410 3415 3420

 Gly Tyr Trp Gln Thr His Thr Gly Leu Thr Ala His Leu Thr Asp
 3425 3430 3435

 Val Asp Leu Ala Arg Met Thr Arg Leu Gly Leu Met Pro Ile Ala
 3440 3445 3450

 Thr Ser His Gly Leu Ala Leu Phe Asp Ala Ala Leu Ala Thr Gly
 3455 3460 3465

 Gln Pro Val Ser Ile Pro Ala Pro Ile Asn Thr His Thr Leu Ala
 3470 3475 3480

 Arg His Ala Arg Asp Asn Thr Leu Ala Pro Ile Leu Ser Ala Leu
 3485 3490 3495

 Ile Thr Thr Pro Arg Arg Arg Ala Ala Ser Ala Thr Asp Leu
 3500 3505 3510

Ala Ala	Arg Leu Asn Gly Leu	Ser Pro Gln Gln Gln	Gln Gln Thr
3515	3520		3525
Leu Ala	Thr Leu Val Ala Ala	Ala Thr Ala Thr Val	Leu Gly His
3530	3535		3540
His Thr	Pro Glu Ser Ile Ser	Pro Ala Thr Ala Phe	Lys Asp Leu
3545	3550		3555
Gly Ile	Asp Ser Leu Thr Ala	Leu Glu Leu Arg Asn	Thr Leu Thr
3560	3565		3570
His Asn	Thr Gly Leu Asn Leu	Ser Ser Thr Leu Ile	Phe Asp His
3575	3580		3585
Pro Thr	Pro His Ala Val Ala	Glu His Leu Leu Glu	Gln Ile Pro
3590	3595		3600
Gly Ile	Gly Ala Leu Val Pro	Ala Pro Val Val Ile	Ala Ala Gly
3605	3610		3615
Arg Thr	Glu Glu Pro Val Ala	Val Val Gly Met Ala	Cys Arg Phe
3620	3625		3630
Pro Gly	Gly Val Ala Ser Ala	Asp Gln Leu Trp Asp	Leu Val Ile
3635	3640		3645
Ala Gly	Arg Asp Val Val Gly	Asn Phe Pro Ala Asp	Arg Gly Trp
3650	3655		3660
Asp Val	Glu Gly Leu Phe Asp	Pro Asp Pro Asp Ala	Val Gly Lys
3665	3670		3675
Thr Tyr	Thr Arg Tyr Gly Ala	Phe Leu Asp Asp Ala	Ala Gly Phe
3680	3685		3690
Asp Ala	Gly Phe Phe Gly Ile	Ser Pro Arg Glu Ala	Arg Ala Met
3695	3700		3705
Asp Pro	Gln Gln Arg Leu Leu	Leu Glu Val Cys Trp	Glu Ala Leu
3710	3715		3720
Glu Thr	Ala Gly Ile Pro Ala	His Thr Leu Ala Gly	Thr Ser Thr
3725	3730		3735

Gly Val Phe Val Gly Ala Gly Ala Gln Ser Tyr Gly Ala Thr Asn
3740 3745 3750

Ser Asp Asp Ala Glu Gly Tyr Ala Met Thr Gly Gly Ala Thr Ser
3755 3760 3765

Val Met Ser Gly Arg Ile Ala Tyr Thr Leu Gly Leu Glu Gly Pro
3770 3775 3780

Ala Ile Thr Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Ile
3785 3790 3795

His Leu Ala Cys Gln Ser Leu Arg Asn Asn Glu Ser Gln Leu Ala
3800 3805 3810

Leu Ala Gly Gly Val Thr Val Met Ser Thr Pro Ala Ile Phe Thr
3815 3820 3825

Glu Phe Ser Arg Gln Arg Gly Leu Ala Pro Asp Gly Arg Cys Lys
3830 3835 3840

Ala Phe Ala Ala Thr Ala Asp Gly Thr Gly Trp Gly Glu Gly Ala
3845 3850 3855

Ala Val Leu Val Leu Glu Arg Leu Ser Glu Ala Arg Arg Asn Asn
3860 3865 3870

His Pro Val Leu Ala Ile Val Ala Gly Ser Ala Ile Asn Gln Asp
3875 3880 3885

Gly Ala Ser Asn Gly Leu Thr Ala Pro His Gly Pro Ser Gln Gln
3890 3895 3900

Arg Val Ile Asn Gln Ala Leu Ala Asn Ala Gly Leu Thr His Asp
3905 3910 3915

Gln Val Asp Ala Val Glu Ala His Gly Thr Gly Thr Thr Leu Gly
3920 3925 3930

Asp Pro Ile Glu Ala Gly Ala Leu His Ala Thr Tyr Gly His His
3935 3940 3945

His Thr Pro Asp Gln Pro Leu Trp Leu Gly Ser Ile Lys Ser Asn
3950 3955 3960

Ile Gly His Thr Gln Ala Ala Ala Gly Ala Ala Gly Val Val Lys
 3965 3970 3975

 Met Ile Gln Ala Ile Thr His Ala Thr Leu Pro Ala Thr Leu His
 3980 3985 3990

 Val Asp Gln Pro Ser Pro His Ile Asp Trp Ser Ser Gly Thr Val
 3995 4000 4005

 Arg Leu Leu Thr Glu Pro Ile Gln Trp Pro Asn Thr Asp His Pro
 4010 4015 4020

 Arg Thr Ala Ala Val Ser Ser Phe Gly Ile Ser Gly Thr Asn Ala
 4025 4030 4035

 His Leu Ile Leu Gln Gln Pro Pro Thr Pro Asp Thr Thr Gln Thr
 4040 4045 4050

 Pro Asn Pro Thr Thr Gly Ser Asp Pro Ala Val Gly Ser Asp Ser
 4055 4060 4065

 Ala Val Gly Ser Asp Pro Ala Val Gly Val Leu Val Trp Pro Leu
 4070 4075 4080

 Ser Ala Arg Ser Ala Pro Gly Leu Ser Ala Gln Ala Ala Arg Leu
 4085 4090 4095

 Tyr Gln His Leu Ser Ala His Pro Asp Leu Asp Pro Ile Asp Val
 4100 4105 4110

 Ala His Ser Leu Ala Thr Thr Arg Ser His His Pro His Arg Ala
 4115 4120 4125

 Thr Ile Thr Thr Ser Ile Glu His His Ser Glu Asn Asn His Asp
 4130 4135 4140

 Thr Thr Asp Ala Leu Ala Ala Leu His Ala Leu Ala Asn Asn Gly
 4145 4150 4155

 Thr His Pro Leu Leu Ser Arg Gly Leu Leu Thr Pro Gln Gly Pro
 4160 4165 4170

 Gly Lys Thr Val Phe Val Phe Pro Gly Gln Gly Ser Gln Tyr Pro
 4175 4180 4185

 Gly Met Gly Ala Asp Leu Tyr Arg Gln Phe Pro Val Phe Ala His

4190	4195	4200
Ala Leu Asp Ala Cys Asp	Ala Ala Leu Gln Pro	Phe Thr Gly Trp
4205	4210	4215
Ser Val Leu Ala Val Leu	His Asp Glu Pro Glu	Ala Pro Ser Leu
4220	4225	4230
Glu Arg Val Asp Val Val	Gln Pro Val Leu Phe	Ser Val Met Val
4235	4240	4245
Ser Leu Ala Ala Leu Trp	Arg Trp Ala Gly Ile	Thr Pro Asp Ala
4250	4255	4260
Val Ile Gly His Ser Gln	Gly Glu Ile Ala Ala	Ala His Val Ala
4265	4270	4275
Gly Ala Leu Thr Leu Pro	Glu Ala Ala Ala Val	Val Ala Leu Arg
4280	4285	4290
Ser Arg Val Leu Thr Asp	Leu Ala Gly Ala Gly	Ala Met Ala Ser
4295	4300	4305
Val Leu Ser Pro Glu Glu	Pro Leu Thr Gln Leu	Leu Ala Arg Trp
4310	4315	4320
Asp Gly Lys Ile Thr Val	Ala Ala Val Asn Gly	Pro Ala Ser Ala
4325	4330	4335
Val Val Ser Gly Asp Thr	Thr Ala Ile Thr Glu	Leu Leu Ile Thr
4340	4345	4350
Cys Glu His Glu Asn Ile	Asp Ala Arg Ala Ile	Pro Val Asp Tyr
4355	4360	4365
Pro Ser His Ser Pro Tyr	Met Glu His Ile Arg	His Gln Phe Leu
4370	4375	4380
Asp Glu Leu Pro Glu Leu	Thr Pro Arg Pro Ser	Thr Ile Ala Met
4385	4390	4395
Tyr Ser Thr Val Asp Gly	Glu Pro His Asp Thr	Ala Tyr Asp Thr
4400	4405	4410
Thr Thr Met Thr Ala Asp	Tyr Trp Tyr Arg Asn	Ile Arg Asn Thr
4415	4420	4425

Val Arg Phe His Asp Thr Val Ala Ala Leu Leu Gly Ala Gly Glu
 4430 4435 4440

Gln Val Phe Leu Glu Leu Ser Pro His Pro Val Leu Thr Gln Ala
 4445 4450 4455

Ile Thr Asp Thr Val Glu Gln Ala Gly Gly Gly Gly Ala Ala Val
 4460 4465 4470

Pro Ala Leu Arg Lys Asp Arg Pro Asp Ala Val Ala Phe Ala Ala
 4475 4480 4485

Ala Leu Gly Gln Leu His Cys His Gly Ile Ser Pro Ser Trp Asn
 4490 4495 4500

Val Leu Tyr Cys Gln Ala Arg Pro Leu Thr Leu Pro Thr Tyr Ala
 4505 4510 4515

Phe Gln His Gln Arg Tyr Trp Leu Leu Pro Thr Ala Gly Asp Phe
 4520 4525 4530

Ser Gly Ala Asn Thr His Ala Met His Pro Leu Leu Asp Thr Ala
 4535 4540 4545

Thr Glu Leu Ala Glu Asn Arg Gly Trp Val Phe Thr Gly Arg Ile
 4550 4555 4560

Ser Pro Arg Thr Gln Pro Trp Leu Asn Glu His Ala Val Glu Ser
 4565 4570 4575

Ala Val Leu Phe Pro Gly Thr Gly Phe Val Glu Leu Ala Leu His
 4580 4585 4590

Val Ala Asp Arg Ala Gly Tyr Ser Ser Val Asn Glu Leu Ile Val
 4595 4600 4605

His Thr Pro Leu Leu Leu Ala Gly His Asp Thr Ala Asp Leu Gln
 4610 4615 4620

Ile Thr Val Thr Asp Thr Asp Asp Met Gly Arg Gln Ser Leu Asn
 4625 4630 4635

Ile His Ser Arg Pro His Ile Gly His Asp Asn Thr Thr Thr Gly
 4640 4645 4650

Asp Glu Gln Pro Glu Trp Val Leu His Ala Ser Ala Val Leu Thr
 4655 4660 4665
 Ala Gln Thr Thr Asp His Asn His Leu Pro Leu Thr Pro Val Pro
 4670 4675 4680
 Trp Pro Pro Pro Gly Thr Ala Ala Ile Glu Val Asp Asp Phe Tyr
 4685 4690 4695
 Asp Asp Leu Ala Ala Gln Gly Tyr Asn Tyr Gly Pro Thr Phe Gln
 4700 4705 4710
 Gly Val Gln Arg Ile Trp Arg Asp His Ala Thr Pro Asp Val Ile
 4715 4720 4725
 Tyr Ala Glu Val Glu Leu Pro Glu Asp Thr Asp Ile Asp Gly Tyr
 4730 4735 4740
 Gly Ile His Pro Ala Leu Phe Asp Ala Ala Leu His Pro Leu Leu
 4745 4750 4755
 Ala Leu Thr Gln Pro Pro Thr Asn Asp Thr Asp Asp Thr Asn Thr
 4760 4765 4770
 Ala Asp Thr Gly Asp Gln Val Arg Leu Pro Tyr Ala Phe Thr Gly
 4775 4780 4785
 Ile Ser Leu His Ala Thr His Ala Thr Arg Leu Arg Val Arg Leu
 4790 4795 4800
 Thr Arg Thr Gly Ala Asp Ala Ile Thr Val His Thr Ser Asp Thr
 4805 4810 4815
 Thr Gly Ala Pro Val Ala Ile Ile Asp Ser Leu Ile Thr Arg Pro
 4820 4825 4830
 Leu Thr Thr Ala Thr Gly Ser Ala Pro Ala Thr Thr Ala Ala Gly
 4835 4840 4845
 Leu Leu His Leu Ser Trp Pro Pro His Pro Asp Thr Thr Thr Asp
 4850 4855 4860
 Thr Asp Thr Asp Thr Asp Ala Leu Arg Tyr Gln Val Ile Ala Glu
 4865 4870 4875

Thr Asp Leu His Thr Ser Thr Thr Glu Ala Asp Val Val Val Trp
4895 4900 4905

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Pro Val  Pro Val Pro Ser  Asn  Glu Glu Leu Gln  Ala  His Gln Ala
      4910                4915                4920

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Ser Asp Thr Ala Val Ser Ser Arg Ile His Thr Leu Thr Arg Gln
4925 4930 4935

Thr Leu Thr Val Val Gln Asp Trp Leu Thr His Pro Asp Thr Thr
4940 4945 4950

Gly Thr Arg Leu Val Ile Val Thr Arg His Gly Val Ser Thr Ser
4955 4960 4965

Ala His Asp Pro Val Pro Asp Leu Ala His Ala Ala Val Trp Gly
4970 4975 4980

Leu Ile Arg Ser Ala Gln Asn Glu His Pro Gly Arg Phe Thr Leu
4985 4990 4995

Leu Asp Thr Asp Asp Asn Thr Asn Ser Asp Thr Leu Thr Thr Ala
5000 5005 5010

Leu Thr Leu Pro Thr Arg Glu Asn Gln Leu Ala Ile Arg Arg Asp
5015 5020 5025

Thr Ile His Ile Pro Arg Leu Thr Arg Thr Ala Val Leu Thr Pro
5030 5035 5040

Pro Asp Ser Gly Pro Trp Arg Leu Asp Thr Thr Gly Lys Gly Asp
5045 5050 5055

Leu Ala Asn Leu Ala Leu Leu Pro Thr Ala His Thr Ala Leu Ala
5060 5065 5070

Ser Gly Gln Ile Arg Ile Asp Val Arg Ala Ala Gly Leu Asn Phe
5075 5080 5085

His Asp Val Val Val Ala Leu Gly Leu Ile Pro Asp Asp Gly Phe
5090 5095 5100

Gly Gly Glu Ala Ala Gly Val Ile Ser Glu Ile Gly Pro Asp Val
 5105 5110 5115

Tyr Gly Phe Ala Val Gly Asp Ala Val Thr Gly Met Thr Val Ser
 5120 5125 5130

Gly Ala Phe Ala Pro Ser Thr Val Ala Asp His Arg Met Val Met
 5135 5140 5145

Thr Ile Pro Ala Arg Trp Ser Phe Pro Gln Ala Ala Ser Ile Pro
 5150 5155 5160

Val Val Phe Leu Thr Ala Tyr Ile Ala Leu Ala Glu Ile Ser Gly
 5165 5170 5175

Leu Ser Arg Gly Gln Arg Val Leu Ile His Ala Gly Thr Gly Gly
 5180 5185 5190

Val Gly Met Ala Ala Ile Gln Leu Ala His His Leu Gly Ala Glu
 5195 5200 5205

Val Phe Ala Thr Ala Ser Ala Ala Lys Trp Ser Thr Leu Glu Ala
 5210 5215 5220

Leu Gly Val Pro Arg Asp His Ile Ala Ser Ser Arg Thr Leu Asp
 5225 5230 5235

Phe Ser Asn Ala Phe Leu Asp Ala Thr Asn Gly Ala Gly Val Asp
 5240 5245 5250

Val Val Leu Asn Cys Leu Ser Gly Glu Phe Val Glu Ala Ser Leu
 5255 5260 5265

Ala Leu Leu Pro Arg Gly Gly His Phe Val Glu Ile Gly Lys Thr
 5270 5275 5280

Asp Ile Arg Asp Thr Glu Val Ile Ala Ala Thr His Pro Gly Val
 5285 5290 5295

Ile Tyr Arg Ala Leu Asp Leu Leu Ser Val Ser Pro Asp His Ile
 5300 5305 5310

Gln Arg Thr Leu Ala Gln Leu Ser Pro Leu Phe Ala Thr Asp Thr
 5315 5320 5325

Leu Lys Pro Leu Pro Thr Thr Asn Tyr Ser Ile Tyr Gln Ala Ile
5330 5335 5340

Ser Ala Leu Arg Asp Met Ser Gln Ala Arg His Thr Gly Lys Ile
5345 5350 5355

Val Leu Thr Ala Pro Val Val Val Asp Pro Glu Gly Thr Val Leu
5360 5365 5370

Ile Thr Gly Gly Thr Gly Thr Leu Gly Ala Leu Phe Ala Glu His
5375 5380 5385

Leu Val Ser Ala His Gly Val Arg His Leu Leu Leu Thr Ser Arg
5390 5395 5400

Arg Gly Pro Gln Ala His Gly Ala Thr Asp Leu Gln Gln Arg Leu
5405 5410 5415

Thr Asp Leu Gly Ala His Val Thr Ile Thr Ala Cys Asp Ile Ser
5420 5425 5430

Asp Pro Glu Ala Leu Ala Ala Leu Val Asn Ser Val Pro Thr Gln
5435 5440 5445

His Arg Leu Thr Ala Val Val His Thr Ala Val Val Leu Ala Asp
5450 5455 5460

Thr Pro Val Thr Glu Leu Thr Gly Asp Gln Leu Asp Gln Val Leu
5465 5470 5475

Ala Pro Lys Ile Asp Ala Ala Trp Gln Leu His Gln Leu Thr Tyr
5480 5485 5490

Glu His Asn Leu Ser Ala Phe Ile Met Phe Ser Ser Met Ala Gly
5495 5500 5505

Met Ile Gly Ser Pro Gly Leu Gly Asn Tyr Ala Ala Ala Asn Thr
5510 5515 5520

Ala Leu Asp Ala Leu Ala Asp Tyr Arg His Arg Leu Gly Leu Pro
5525 5530 5535

Ala Thr Ser Leu Ala Trp Gly Tyr Trp Gln Thr Arg Thr Gly Leu
5540 5545 5550

Thr Ala His Leu Thr Asp Val Asp Leu Ala Arg Met Thr Arg Leu

5555	5560	5565
Gly Leu Met Pro Ile Ala Thr Ser His Gly Leu Ala Leu Phe Asp 5570 5575 5580		
Ala Ala Leu Ala Thr Gly Gln Pro Val Ser Ile Pro Ala Pro Ile 5585 5590 5595		
Asn Thr His Thr Leu Ala Arg His Ala Arg Asp Asn Thr Leu Ala 5600 5605 5610		
Pro Ile Leu Ser Ala Leu Ile Thr Thr Pro Arg Arg Arg Ala Ala 5615 5620 5625		
Ser Ala Ala Thr Asp Leu Ala Ala Arg Leu Asn Gly Leu Ser Pro 5630 5635 5640		
Gln Gln Gln Gln Gln Thr Leu Ala Thr Leu Val Ala Ala Ala Thr 5645 5650 5655		
Ala Thr Val Leu Gly His His Thr Pro Glu Ser Ile Ser Pro Ala 5660 5665 5670		
Thr Ala Phe Lys Asp Leu Gly Ile Asp Ser Leu Thr Ala Leu Glu 5675 5680 5685		
Leu Arg Asn Thr Leu Thr His Asn Thr Gly Leu Asn Leu Ser Ser 5690 5695 5700		
Thr Leu Ile Phe Asp His Pro Thr Pro His Ala Val Ala Glu His 5705 5710 5715		
Leu Leu Glu Gln Ile Pro Gly Ile Gly Ala Leu Val Pro Ala Pro 5720 5725 5730		
Val Val Ile Ala Ala Gly Arg Thr Glu Glu Pro Val Ala Val Val 5735 5740 5745		
Gly Met Ala Cys Arg Phe Pro Gly Gly Val Ala Ser Ala Asp Gln 5750 5755 5760		
Leu Trp Asp Leu Val Ile Ala Gly Arg Asp Val Val Gly Asn Phe 5765 5770 5775		
Pro Ala Asp Arg Gly Trp Asp Val Glu Gly Leu Phe Asp Pro Asp		

5780		5785		5790
Pro Asp	Ala Val Gly Lys Thr	Tyr Thr Arg Tyr Gly	Ala Phe Leu	
5795		5800		5805
Asp Asp	Ala Ala Gly Phe Asp	Ala Gly Phe Phe Gly	Ile Ser Pro	
5810		5815		5820
Arg Glu	Ala Arg Ala Met Asp	Pro Gln Gln Arg Leu	Leu Leu Glu	
5825		5830		5835
Val Cys	Trp Glu Ala Leu Glu	Thr Ala Gly Ile Pro	Ala His Thr	
5840		5845		5850
Leu Ala	Gly Thr Ser Thr Gly	Val Phe Val Gly Ala	Gly Ala Gln	
5855		5860		5865
Ser Tyr	Gly Ala Thr Asn Ser	Asp Gly Ala Glu Gly	Tyr Ala Met	
5870		5875		5880
Thr Gly	Gly Ala Ile Ser Val	Met Ser Gly Arg Ile	Ala Tyr Thr	
5885		5890		5895
Leu Gly	Leu Glu Gly Pro Ala	Ile Thr Val Asp Thr	Ala Cys Ser	
5900		5905		5910
Ser Ser	Leu Val Ala Ile His	Leu Ala Cys Gln Ser	Leu Arg Asn	
5915		5920		5925
Asn Glu	Ser Gln Leu Ala Leu	Ala Gly Gly Val Thr	Val Met Ser	
5930		5935		5940
Thr Pro	Ala Ile Phe Thr Glu	Phe Ser Arg Gln Arg	Gly Leu Ala	
5945		5950		5955
Pro Asp	Gly Arg Cys Lys Ala	Phe Ala Ala Thr Ala	Asp Gly Thr	
5960		5965		5970
Gly Phe	Gly Glu Gly Ala Ala	Val Leu Val Leu Glu	Arg Leu Ser	
5975		5980		5985
Glu Ala	Arg Arg Asn Asn His	Pro Val Leu Ala Ile	Val Ala Gly	
5990		5995		6000
Ser Ala	Ile Asn Gln Asp Gly	Ala Ser Asn Gly Leu	Thr Ala Pro	
6005		6010		6015

His Gly Pro Ser Gln Gln Arg Val Ile Asn Gln Ala Leu Ala Asn
 6020 6025 6030

Ala Gly Leu Thr His Asp Gln Val Asp Ala Val Glu Ala His Gly
 6035 6040 6045

Thr Gly Thr Thr Leu Gly Asp Pro Ile Glu Ala Ser Ala Leu His
 6050 6055 6060

Ala Thr Tyr Gly His His His Thr Pro Asp Gln Pro Leu Trp Leu
 6065 6070 6075

Gly Ser Ile Lys Ser Asn Ile Gly His Thr Gln Ala Ala Ala Gly
 6080 6085 6090

Ala Ala Gly Val Val Lys Met Ile Gln Ala Ile Thr His Ala Thr
 6095 6100 6105

Leu Pro Ala Thr Leu His Val Asp Gln Pro Ser Pro His Ile Asp
 6110 6115 6120

Trp Ser Ser Gly Thr Val Arg Leu Leu Thr Glu Pro Ile Gln Trp
 6125 6130 6135

Pro Asn Thr Asp His Pro Arg Thr Ala Ala Val Ser Ser Phe Gly
 6140 6145 6150

Ile Ser Gly Thr Asn Ala His Leu Ile Leu Gln Gln Pro Pro Thr
 6155 6160 6165

Pro Asp Thr Thr Gln Thr Pro Asn Thr Thr Thr Gly Ser Asp Pro
 6170 6175 6180

Ala Val Gly Ser Asp Ser Ala Val Gly Ser Asp Pro Ala Val Gly
 6185 6190 6195

Val Leu Val Trp Pro Leu Ser Ala Arg Ser Ala Pro Gly Leu Ser
 6200 6205 6210

Ala Gln Ala Ala Arg Leu Tyr Gln His Leu Ser Ala His Pro Asp
 6215 6220 6225

Leu Asp Pro Ile Asp Val Ala His Ser Leu Ala Thr Thr Arg Ser
 6230 6235 6240

His His Pro His Arg Ala Thr Ile Thr Thr Ser Ile Glu His His
6245 6250 6255

Ser Glu Asn Asn His Asp Thr Thr Asp Ala Leu Ala Ala Leu His
6260 6265 6270

Ala Leu Ala Asn Asn Gly Thr His Pro Leu Leu Ser Arg Gly Leu
6275 6280 6285

Leu Thr Pro Gln Gly Pro Gly Lys Thr Val Phe Val Phe Pro Gly
6290 6295 6300

Gln Gly Ser Gln Tyr Pro Gly Met Gly Ala Asp Leu Tyr Arg Gln
6305 6310 6315

Phe Pro Val Phe Ala His Ala Leu Asp Ala Cys Asp Ala Ala Leu
6320 6325 6330

Gln Pro Phe Thr Gly Trp Ser Val Leu Ala Val Leu His Asp Glu
6335 6340 6345

Pro Glu Ala Pro Ser Leu Glu Arg Val Asp Val Val Gln Pro Val
6350 6355 6360

Leu Phe Ser Val Met Val Ser Leu Ala Ala Leu Trp Arg Trp Ala
6365 6370 6375

Gly Ile Thr Pro Asp Ala Val Ile Gly His Ser Gln Gly Glu Ile
6380 6385 6390

Ala Ala Ala His Val Ala Gly Ala Leu Thr Leu Pro Glu Ala Ala
6395 6400 6405

Ala Val Val Ala Leu Arg Ser Arg Val Leu Thr Asp Leu Ala Gly
6410 6415 6420

Ala Gly Ala Met Ala Ser Val Leu Ser Pro Glu Glu Pro Leu Thr
6425 6430 6435

Gln Leu Leu Ala Arg Trp Asp Gly Lys Ile Thr Val Ala Ala Val
6440 6445 6450

Asn Gly Pro Ala Ser Ala Val Val Ser Gly Asp Thr Thr Ala Ile
6455 6460 6465

Thr Glu Leu Leu Ile Thr Cys Glu His Glu Asn Ile Asp Ala Arg
 6470 6475 6480
 Ala Ile Pro Val Asp Tyr Pro Ser His Ser Pro Tyr Met Glu His
 6485 6490 6495
 Ile Arg His Gln Phe Leu Asp Glu Leu Pro Glu Leu Thr Pro Arg
 6500 6505 6510
 Pro Ser Thr Ile Ala Met Tyr Ser Thr Val Asp Gly Glu Pro His
 6515 6520 6525
 Asp Thr Ala Tyr Asp Thr Thr Thr Met Thr Ala Asp Tyr Trp Tyr
 6530 6535 6540
 Arg Asn Ile Arg Asn Thr Val Arg Phe His Asp Thr Val Ala Ala
 6545 6550 6555
 Leu Leu Gly Ala Gly Glu Gln Val Phe Leu Glu Leu Ser Pro His
 6560 6565 6570
 Pro Val Leu Thr Gln Ala Ile Thr Asp Thr Val Glu Gln Ala Gly
 6575 6580 6585
 Gly Gly Gly Ala Ala Val Pro Ala Leu Arg Lys Asp Arg Pro Asp
 6590 6595 6600
 Ala Val Ala Phe Ala Ala Ala Leu Gly Gln Leu His Cys His Gly
 6605 6610 6615
 Ile Ser Pro Ser Trp Asn Val Leu Tyr Cys Gln Ala Arg Pro Leu
 6620 6625 6630
 Thr Leu Pro Thr Tyr Ala Phe Gln His Gln Arg Tyr Trp Leu Leu
 6635 6640 6645
 Pro Thr Ala Gly Asp Phe Ser Gly Ala Asn Thr His Ala Met His
 6650 6655 6660
 Pro Leu Leu Asp Thr Ala Thr Glu Leu Ala Glu Asn Arg Gly Trp
 6665 6670 6675
 Val Phe Thr Gly Arg Ile Ser Pro Arg Thr Gln Pro Trp Leu Asn
 6680 6685 6690
 Glu His Ala Val Glu Ser Ala Val Leu Phe Pro Gly Thr Gly Phe

6695		6700		6705
Val Glu Leu Ala Leu His	Val Ala Asp Arg Ala Gly Tyr Ser Ser			
6710	6715		6720	
Val Asn Glu Leu Ile Val His Thr Pro Leu Leu Leu Ala Gly His				
6725	6730		6735	
Asp Thr Ala Asp Leu Gln Ile Thr Val Thr Asp Thr Asp Asp Met				
6740	6745		6750	
Gly Arg Gln Ser Leu Asn Ile His Ser Arg Pro His Ile Gly His				
6755	6760		6765	
Asp Asn Thr Thr Thr Gly Asp Glu Gln Pro Glu Trp Val Leu His				
6770	6775		6780	
Ala Ser Ala Val Leu Thr Ala Gln Thr Thr Asp His Asn His Leu				
6785	6790		6795	
Pro Leu Thr Pro Val Pro Trp Pro Pro Pro Gly Thr Ala Ala Ile				
6800	6805		6810	
Glu Val Asp Asp Phe Tyr Asp Asp Leu Ala Ala Gln Gly Tyr Asn				
6815	6820		6825	
Tyr Gly Pro Thr Phe Gln Gly Val Gln Arg Ile Trp Arg Asp His				
6830	6835		6840	
Ala Thr Pro Asp Val Ile Tyr Ala Glu Val Glu Leu Pro Glu Asp				
6845	6850		6855	
Thr Asp Ile Asp Gly Tyr Gly Ile His Pro Ala Leu Phe Asp Ala				
6860	6865		6870	
Ala Leu His Pro Leu Leu Ala Leu Thr Gln Pro Pro Thr Asn Asp				
6875	6880		6885	
Thr Asp Asp Thr Asn Thr Ala Asp Thr Gly Asp Gln Val Arg Leu				
6890	6895		6900	
Pro Tyr Ala Phe Thr Gly Ile Ser Leu His Ala Thr His Ala Thr				
6905	6910		6915	
Arg Leu Arg Val Arg Leu Thr Arg Thr Gly Ala Asp Ala Ile Thr				

6920	6925	6930
Val His Thr Ser Asp Thr Thr Gly Ala Pro Val Ala Ile Ile Asp 6935 6940 6945		
Ser Leu Ile Thr Arg Pro Leu Thr Thr Ala Thr Gly Ser Ala Pro 6950 6955 6960		
Ala Thr Thr Ala Ala Gly Leu Leu His Leu Ser Trp Pro Pro His 6965 6970 6975		
Pro Asp Thr Thr Thr Asp Thr Asp Thr Asp Thr Asp Ala Leu Arg 6980 6985 6990		
Tyr Arg Val Ile Ala Glu Pro Thr Gln Gln Leu Pro Arg Tyr Leu 6995 7000 7005		
His Asp Leu His Thr Ser Thr Asp Leu His Thr Ser Thr Thr Glu 7010 7015 7020		
Ala Asp Val Val Val Trp Pro Val Pro Val Pro Ser Asn Glu Glu 7025 7030 7035		
Leu Gln Ala His Gln Ala Ser Asp Thr Ala Val Ser Ser Arg Ile 7040 7045 7050		
His Thr Leu Thr Arg Gln Thr Leu Thr Val Val Gln Asp Trp Leu 7055 7060 7065		
Thr His Pro Asp Thr Thr Gly Thr Arg Leu Val Ile Val Thr Arg 7070 7075 7080		
His Gly Val Ser Thr Ser Ala His Asp Pro Val Pro Asp Leu Ala 7085 7090 7095		
His Ala Ala Val Trp Gly Leu Ile Arg Ser Ala Gln Asn Glu His 7100 7105 7110		
Pro Gly Arg Phe Thr Leu Leu Asp Thr Asp Asp Asn Thr Asn Ser 7115 7120 7125		
Asp Thr Leu Thr Thr Ala Leu Thr Leu Pro Thr Arg Glu Asn Gln 7130 7135 7140		
Leu Ala Ile Arg Arg Asp Thr Ile His Ile Pro Arg Leu Thr Arg 7145 7150 7155		

His Ser Ser Asp Gly Ala Leu Thr Ala Pro Val Val Val Asp Pro
7160 7165 7170

Glu Gly Thr Val Leu Ile Thr Gly Gly Thr Gly Thr Leu Gly Ala
7175 7180 7185

Leu Phe Ala Glu His Leu Val Ser Ala His Gly Val Arg His Leu
7190 7195 7200

Leu Leu Thr Ser Arg Arg Gly Pro Gln Ala His Gly Ala Thr Asp
7205 7210 7215

Leu Gln Gln Arg Leu Thr Asp Leu Gly Ala His Val Thr Ile Thr
7220 7225 7230

Ala Cys Asp Ile Ser Asp Pro Glu Ala Leu Ala Ala Leu Val Asn
7235 7240 7245

Ser Val Pro Thr Gln His Arg Leu Thr Ala Val Val His Thr Ala
7250 7255 7260

Ala Val Leu Ala Asp Thr Pro Val Thr Glu Leu Thr Gly Asp Gln
7265 7270 7275

Leu Asp Gln Val Leu Ala Pro Lys Ile Asp Ala Ala Trp Gln Leu
7280 7285 7290

His Gln Leu Thr Tyr Glu His Asn Leu Ser Ala Phe Ile Met Phe
7295 7300 7305

Ser Ser Met Ala Gly Met Ile Gly Ser Pro Gly Gln Gly Asn Tyr
7310 7315 7320

Ala Ala Ala Asn Thr Ala Leu Asp Ala Leu Ala Asp Tyr Arg His
7325 7330 7335

Arg Leu Gly Leu Pro Ala Thr Ser Leu Ala Trp Gly Tyr Trp Gln
7340 7345 7350

Thr His Thr Gly Leu Thr Ala His Leu Thr Asp Val Asp Leu Ala
7355 7360 7365

Arg Met Thr Arg Leu Gly Leu Met Pro Ile Ala Thr Ser His Gly
7370 7375 7380

Leu Ala Leu Phe Asp Ala Ala Leu Ala Thr Gly Gln Pro Val Ser
7385 7390 7395

Ile Pro Ala Pro Ile Asn Thr His Thr Leu Ala Arg His Ala Arg
7400 7405 7410

Asp Asn Thr Leu Ala Pro Ile Leu Ser Ala Leu Ile Thr Thr Pro
7415 7420 7425

Arg Arg Arg Ala Ala Ser Ala Ala Thr Asp Leu Ala Ala Arg Leu
7430 7435 7440

Asn Gly Leu Ser Pro Gln Gln Gln Gln Gln Thr Leu Ala Thr Leu
7445 7450 7455

Val Ala Ala Ala Thr Ala Thr Val Leu Gly His His Thr Pro Glu
7460 7465 7470

Ser Ile Ser Pro Ala Thr Ala Phe Lys Asp Leu Gly Ile Asp Ser
7475 7480 7485

Leu Thr Ala Leu Glu Leu Arg Asn Thr Leu Thr His Asn Thr Gly
7490 7495 7500

Leu Asp Leu Pro Pro Thr Leu Ile Phe Asp His Pro Thr Pro Thr
7505 7510 7515

Ala Leu Thr Gln His Leu His Thr Arg Leu Thr Thr Gly Ala Leu
7520 7525 7530

Val Pro Ala Pro Val Val Ile Ala Ala Gly Arg Thr Glu Glu Pro
7535 7540 7545

Val Ala Val Val Gly Met Ala Cys Arg Phe Pro Gly Gly Val Ala
7550 7555 7560

Ser Ala Asp Gln Leu Trp Asp Leu Val Ile Ala Gly Arg Asp Val
7565 7570 7575

Val Gly Asn Phe Pro Ala Asp Arg Gly Trp Asp Val Glu Gly Leu
7580 7585 7590

Phe Asp Pro Asp Pro Asp Ala Val Gly Lys Thr Tyr Thr Arg Tyr
7595 7600 7605

Gly Ala	Phe Leu Asp Asp	Ala Ala Gly Phe Asp	Ala Gly Phe Phe
7610		7615	7620
Gly Ile	Ser Pro Arg Glu	Ala Arg Ala Met Asp	Pro Gln Gln Arg
7625		7630	7635
Leu Leu	Leu Glu Val Cys	Trp Glu Ala Leu Glu	Thr Ala Gly Ile
7640		7645	7650
Pro Ala	His Thr Leu Ala	Gly Thr Ser Thr Gly	Val Phe Val Gly
7655		7660	7665
Ala Trp	Ala Gln Ser Tyr	Gly Ala Thr Asn Ser	Asp Asp Ala Glu
7670		7675	7680
Gly Tyr	Ala Met Thr Gly	Gly Ala Ile Ser Val	Met Ser Gly Arg
7685		7690	7695
Ile Ala	Tyr Thr Leu Gly	Leu Glu Gly Pro Ala	Ile Thr Val Asp
7700		7705	7710
Thr Ala	Cys Ser Ser Ser	Leu Val Ala Ile His	Leu Ala Cys Gln
7715		7720	7725
Ser Leu	Arg Asn Asn Glu	Ser Gln Leu Ala Leu	Ala Gly Gly Val
7730		7735	7740
Thr Val	Met Ser Thr Pro	Ala Val Phe Thr Asp	Phe Ser Arg Gln
7745		7750	7755
Arg Gly	Leu Ala Pro Asp	Gly Arg Cys Lys Ala	Phe Ala Ala Thr
7760		7765	7770
Ala Asp	Gly Thr Gly Phe	Gly Glu Gly Ala Ala	Val Leu Val Leu
7775		7780	7785
Glu Arg	Leu Ser Glu Ala	Arg Arg Asn Asn His	Pro Val Leu Ala
7790		7795	7800
Ile Val	Ala Gly Ser Ala	Ile Asn Gln Asp Gly	Ala Ser Asn Gly
7805		7810	7815
Leu Thr	Ala Pro His Gly	Pro Ser Gln Gln Arg	Val Ile Asn Gln
7820		7825	7830

Ala Leu	Ala Asn	Ala Gly	Leu Thr	His Asp	Gln Val	Asp Ala	Val
7835			7840				7845
Glu Ala	His Gly	Thr Gly	Thr Thr	Leu Gly	Asp Pro	Ile Glu	Ala
7850			7855				7860
Gly Ala	Leu His	Ala Thr	Tyr Gly	His His	His Thr	Pro Asp	Gln
7865			7870				7875
Pro Leu	Trp Leu	Gly Ser	Ile Lys	Ser Asn	Ile Gly	His Thr	Gln
7880			7885				7890
Ala Ala	Ala Gly	Ala Ala	Gly Val	Val Lys	Met Ile	Gln Ala	Ile
7895			7900				7905
Thr His	Ala Thr	Leu Pro	Ala Thr	Leu His	Val Asp	Gln Pro	Ser
7910			7915				7920
Pro His	Ile Asp	Trp Ser	Ser Gly	Thr Val	Arg Leu	Leu Thr	Glu
7925			7930				7935
Pro Ile	Gln Trp	Pro Asn	Thr Asp	His Pro	Arg Thr	Ala Ala	Val
7940			7945				7950
Ser Ser	Phe Gly	Ile Ser	Gly Thr	Asn Ala	His Leu	Ile Leu	Gln
7955			7960				7965
Gln Pro	Pro Thr	Pro Asp	Thr Thr	Gln Thr	Pro Asn	Thr Thr	Thr
7970			7975				7980
Gly Ser	Asp Pro	Ala Val	Gly Ser	Asp Pro	Ala Val	Gly Val	Leu
7985			7990				7995
Val Trp	Pro Leu	Ser Ala	Arg Ser	Ala Pro	Gly Leu	Ser Ala	Gln
8000			8005				8010
Ala Ala	Arg Leu	Tyr Gln	His Leu	Ser Ala	His Pro	Asp Leu	Asp
8015			8020				8025
Pro Ile	Asp Val	Ala His	Ser Leu	Ala Thr	Thr Arg	Ser His	His
8030			8035				8040
Pro His	Arg Ala	Thr Ile	Thr Thr	Ser Ile	Glu His	His Ser	Glu
8045			8050				8055

Asn Asn His Asp Thr Thr Asp Ala Leu Ala Ala Leu His Ala Leu
 8060 8065 8070

Ala Asn Asn Gly Thr His Pro Leu Leu Ser Arg Gly Leu Leu Thr
 8075 8080 8085

Pro Gln Gly Pro Gly Lys Thr Val Phe Val Phe Pro Gly Gln Gly
 8090 8095 8100

Ser Gln Tyr Pro Gly Met Gly Ala Asp Leu Tyr Arg Gln Phe Pro
 8105 8110 8115

Val Phe Ala His Ala Leu Asp Ala Cys Asp Ala Ala Leu Gln Pro
 8120 8125 8130

Phe Thr Gly Trp Ser Val Leu Ala Val Leu His Asp Glu Pro Glu
 8135 8140 8145

Ala Pro Ser Leu Glu Arg Val Asp Val Val Gln Pro Val Leu Phe
 8150 8155 8160

Ser Val Met Val Ser Leu Ala Ala Leu Trp Arg Trp Ala Gly Ile
 8165 8170 8175

Thr Pro Asp Ala Val Ile Gly His Ser Gln Gly Glu Ile Ala Ala
 8180 8185 8190

Ala His Val Ala Gly Ala Leu Thr Leu Pro Glu Ala Ala Ala Val
 8195 8200 8205

Val Ala Leu Arg Ser Arg Val Leu Thr Asp Leu Ala Gly Ala Gly
 8210 8215 8220

Ala Met Ala Ser Val Leu Ser Pro Glu Glu Pro Leu Thr Gln Leu
 8225 8230 8235

Leu Ala Arg Trp Asp Gly Lys Ile Thr Val Ala Ala Val Asn Gly
 8240 8245 8250

Pro Ala Ser Ala Val Val Ser Gly Asp Thr Thr Ala Ile Thr Glu
 8255 8260 8265

Leu Leu Ile Thr Cys Glu His Glu Asn Ile Asp Ala Arg Ala Ile
 8270 8275 8280

Pro Val Asp Tyr Pro Ser His Ser Pro Tyr Met Glu His Ile Arg

8285	8290	8295
His Gln Phe Leu Asp Glu Leu Pro Glu Leu Thr Pro Arg Pro Ser		
8300	8305	8310
Thr Ile Ala Met Tyr Ser Thr Val Asp Gly Glu Pro His Asp Thr		
8315	8320	8325
Ala Tyr Asp Thr Thr Thr Met Thr Ala Asp Tyr Trp Tyr Arg Asn		
8330	8335	8340
Ile Arg Asn Thr Val Arg Phe His Asp Thr Val Ala Ala Leu Leu		
8345	8350	8355
Gly Ala Gly Glu Gln Val Phe Leu Glu Leu Ser Pro His Pro Val		
8360	8365	8370
Leu Thr Gln Ala Ile Thr Asp Thr Val Glu Gln Ala Gly Gly Gly		
8375	8380	8385
Gly Ala Ala Val Pro Ala Leu Arg Lys Asp Arg Pro Asp Ala Val		
8390	8395	8400
Ala Phe Ala Ala Ala Leu Gly Gln Leu His Cys His Gly Ile Ser		
8405	8410	8415
Pro Ser Trp Asn Val Leu Tyr Cys Gln Ala Arg Pro Leu Thr Leu		
8420	8425	8430
Pro Thr Tyr Ala Phe Gln His Gln Arg Tyr Trp Leu Leu Pro Thr		
8435	8440	8445
Ala Gly Asp Phe Ser Gly Ala Asn Thr His Ala Met His Pro Leu		
8450	8455	8460
Leu Asp Thr Ala Thr Glu Leu Ala Glu Asn Arg Gly Trp Val Phe		
8465	8470	8475
Thr Gly Arg Ile Ser Pro Arg Thr Gln Pro Trp Leu Asn Glu His		
8480	8485	8490
Ala Val Glu Ser Ala Val Leu Phe Pro Gly Thr Gly Phe Val Glu		
8495	8500	8505
Leu Ala Leu His Val Ala Asp Arg Ala Gly Tyr Ser Ser Val Asn		
8510	8515	8520

Glu Leu Ile Val His Thr Pro Leu Leu Leu Ala Gly His Asp Thr
8525 8530 8535

Ala Asp Leu Gln Ile Thr Val Thr Asp Thr Asp Asp Met Gly Arg
8540 8545 8550

Gln Ser Leu Asn Ile His Ser His Pro His Ile Gly His Asp Asn
8555 8560 8565

Thr Thr Thr Gly Asp Glu Gln Pro Glu Trp Val Leu His Ala Ser
8570 8575 8580

Ala Val Leu Thr Ala Gln Thr Thr Asp His Asn His Leu Pro Leu
8585 8590 8595

Thr Pro Val Pro Trp Pro Pro Pro Gly Thr Ala Ala Ile Glu Val
8600 8605 8610

Asp Asp Phe Tyr Asp Asp Leu Ala Ala Gln Gly Tyr Asn Tyr Gly
8615 8620 8625

Pro Thr Phe Gln Gly Val Gln Arg Ile Trp Arg Asp His Ala Thr
8630 8635 8640

Pro Asp Val Ile Tyr Ala Glu Val Glu Leu Pro Glu Asp Thr Asp
8645 8650 8655

Ile Asp Gly Tyr Gly Ile His Pro Ala Leu Phe Asp Ala Ala Leu
8660 8665 8670

His Pro Leu Leu Ala Leu Thr Gln Pro Pro Thr Asn Asp Thr Asp
8675 8680 8685

Asp Thr Asn Thr Ala Asp Thr Gly Asp Gln Val Arg Leu Pro Tyr
8690 8695 8700

Ala Phe Thr Gly Ile Ser Leu His Ala Thr His Ala Thr Arg Leu
8705 8710 8715

Arg Val Arg Leu Thr Arg Thr Gly Ala Asp Ala Ile Thr Val His
8720 8725 8730

Thr Ser Asp Thr Thr Gly Ala Pro Val Ala Ile Ile Asp Ser Leu
8735 8740 8745

Ile Thr Arg Pro Leu Thr Thr Ala Thr Gly Ser Ala Pro Ala Thr
8750 8755 8760

Thr Ala Ala Gly Leu Leu His Leu Ser Trp Pro Pro His Pro Asp
8765 8770 8775

Thr Thr Thr Asp Thr Asp Thr Asp Thr Asp Ala Leu Arg Tyr Gln
8780 8785 8790

Val Ile Ala Glu Pro Thr Gln Gln Leu Pro Arg Tyr Leu His Asp
8795 8800 8805

Leu His Thr Ser Thr Asp Leu His Thr Ser Thr Thr Glu Ala Asp
8810 8815 8820

Val Val Val Trp Pro Val Pro Val Pro Ser Asn Glu Glu Leu Gln
8825 8830 8835

Ala His Gln Ala Ser Asp Thr Ala Val Ser Ser Arg Ile His Thr
8840 8845 8850

Leu Thr Arg Gln Thr Leu Thr Val Val Gln Asp Trp Leu Thr His
8855 8860 8865

Pro Asp Thr Thr Gly Thr Arg Leu Val Ile Val Thr Arg His Gly
8870 8875 8880

Val Ser Thr Ser Ala His Asp Pro Val Pro Asp Leu Ala His Ala
8885 8890 8895

Ala Val Trp Gly Leu Ile Arg Ser Ala Gln Asn Glu His Pro Gly
8900 8905 8910

Arg Phe Thr Leu Leu Asp Thr Asp Asp Asn Thr Asn Ser Asp Thr
8915 8920 8925

Leu Thr Thr Ala Leu Thr Leu Pro Thr Arg Glu Asn Gln Leu Ala
8930 8935 8940

Ile Arg Arg Asp Thr Ile His Ile Pro Arg Leu Thr Arg Thr Ala
8945 8950 8955

Val Leu Thr Pro Pro Asp Ser Gly Pro Trp Arg Leu Asp Thr Thr
8960 8965 8970

Gly Lys Gly Asp Leu Ala Asn Leu Ala Leu Leu Pro Thr Ala His
 8975 8980 8985
 Thr Ala Leu Ala Ser Gly Gln Ile Arg Ile Asp Val Arg Ala Ala
 8990 8995 9000
 Gly Leu Asn Phe His Asp Val Val Val Ala Leu Gly Leu Ile Pro
 9005 9010 9015
 Asp Asp Gly Phe Gly Gly Glu Ala Ala Gly Val Ile Ser Glu Ile
 9020 9025 9030
 Gly Pro Asp Val Tyr Gly Phe Ala Val Gly Asp Ala Val Thr Gly
 9035 9040 9045
 Met Thr Val Ser Gly Ala Phe Ala Pro Ser Thr Val Ala Asp His
 9050 9055 9060
 Arg Met Val Met Thr Ile Pro Ala Arg Trp Ser Phe Pro Gln Ala
 9065 9070 9075
 Ala Ser Ile Pro Val Val Phe Leu Thr Ala Tyr Ile Ala Leu Ala
 9080 9085 9090
 Glu Ile Ser Gly Leu Ser Arg Gly Gln Arg Val Leu Ile His Ala
 9095 9100 9105
 Gly Thr Gly Gly Val Gly Met Ala Ala Ile Gln Leu Ala His His
 9110 9115 9120
 Leu Gly Ala Glu Val Phe Ala Thr Ala Ser Ala Ala Lys Trp Ser
 9125 9130 9135
 Thr Leu Glu Ala Leu Gly Val Pro Arg Asp His Ile Ala Ser Ser
 9140 9145 9150
 Arg Thr Leu Asp Phe Ser Asn Ala Phe Leu Asp Ala Thr Asn Gly
 9155 9160 9165
 Ala Gly Val Asp Val Val Leu Asn Cys Leu Ser Gly Glu Phe Val
 9170 9175 9180
 Glu Ala Ser Leu Ala Leu Leu Pro Arg Gly Gly His Phe Val Glu
 9185 9190 9195

Ile Gly Lys Thr Asp Ile Arg Asp Thr Glu Val Ile Ala Ala Thr
 9200 9205 9210
 His Pro Gly Val Ile Tyr Arg Ala Leu Asp Leu Leu Ser Val Ser
 9215 9220 9225
 Pro Asp His Ile Gln Arg Thr Leu Ala Gln Leu Ser Pro Leu Phe
 9230 9235 9240
 Ala Thr Asp Thr Leu Lys Pro Leu Pro Thr Thr Asn Tyr Ser Ile
 9245 9250 9255
 Tyr Gln Ala Ile Ser Ala Leu Arg Asp Met Ser Gln Ala Arg His
 9260 9265 9270
 Thr Gly Lys Ile Val Leu Thr Ala Pro Val Val Val Asp Pro Glu
 9275 9280 9285
 Gly Thr Val Leu Ile Thr Gly Gly Thr Gly Thr Leu Gly Ala Leu
 9290 9295 9300
 Phe Ala Glu His Leu Val Ser Ala His Gly Val Arg His Leu Leu
 9305 9310 9315
 Leu Thr Ser Arg Arg Gly Pro Gln Ala His Gly Ala Thr Asp Leu
 9320 9325 9330
 Gln Gln Arg Leu Thr Asp Leu Gly Ala His Val Thr Ile Thr Ala
 9335 9340 9345
 Cys Asp Ile Ser Asp Pro Glu Ala Leu Ala Ala Leu Val Asn Ser
 9350 9355 9360
 Val Pro Thr Gln His Arg Leu Thr Ala Val Val His Thr Ala Ala
 9365 9370 9375
 Val Leu Ala Asp Thr Pro Val Thr Glu Leu Thr Gly Asp Gln Leu
 9380 9385 9390
 Asp Gln Val Leu Ala Pro Lys Ile Asp Ala Ala Trp Gln Leu His
 9395 9400 9405
 Gln Leu Thr Tyr Glu His Asn Leu Ser Ala Phe Ile Met Phe Ser
 9410 9415 9420

Ser Met Ala Gly Met Ile Gly Ser Pro Gly Gln Gly Asn Tyr Ala
 9425 9430 9435

Ala Ala Asn Thr Ala Leu Asp Ala Leu Ala Asp Tyr Arg His Arg
 9440 9445 9450

Leu Gly Leu Pro Ala Thr Ser Leu Ala Trp Gly Tyr Trp Gln Thr
 9455 9460 9465

His Thr Gly Leu Thr Ala His Leu Thr Asp Val Asp Leu Ala Arg
 9470 9475 9480

Met Thr Arg Leu Gly Leu Met Pro Ile Ala Thr Ser His Gly Leu
 9485 9490 9495

Ala Leu Phe Asp Ala Ala Leu Ala Thr Gly Gln Pro Val Ser Ile
 9500 9505 9510

Pro Ala Pro Ile Asn Thr His Thr Leu Ala Arg His Ala Arg Asp
 9515 9520 9525

Asn Thr Leu Ala Pro Ile Leu Ser Ala Leu Ile Thr Thr Pro Arg
 9530 9535 9540

Arg Arg Ala Ala Ser Ala Ala Thr Asp Leu Ala Ala Arg Leu Asn
 9545 9550 9555

Gly Leu Ser Pro Gln Gln Gln Gln Gln Thr Leu Ala Thr Leu Val
 9560 9565 9570

Ala Ala Ala Thr Ala Thr Val Leu Gly His His Thr Pro Glu Ser
 9575 9580 9585

Ile Ser Pro Ala Thr Ala Phe Lys Asp Leu Gly Ile Asp Ser Leu
 9590 9595 9600

Thr Ala Leu Glu Leu Arg Asn Thr Leu Thr His Asn Thr Gly Leu
 9605 9610 9615

Asn Leu Ser Ser Thr Leu Ile Phe Asp His Pro Thr Pro His Ala
 9620 9625 9630

Val Ala Glu His Leu Leu Glu Gln Ile Pro Gly Ile Gly Ala Leu
 9635 9640 9645

Val Pro Ala Pro Val Val Ile Ala Ala Gly Arg Thr Glu Glu Pro
 9650 9655 9660
 Val Ala Val Val Gly Met Ala Cys Arg Phe Pro Gly Gly Val Ala
 9665 9670 9675
 Ser Ala Asp Gln Leu Trp Asp Leu Val Ile Ala Gly Arg Asp Val
 9680 9685 9690
 Val Gly Asn Phe Pro Ala Asp Arg Gly Trp Asp Val Glu Gly Leu
 9695 9700 9705
 Phe Asp Pro Asp Pro Asp Ala Val Gly Lys Thr Tyr Thr Arg Tyr
 9710 9715 9720
 Gly Ala Phe Leu Asp Asp Ala Ala Gly Phe Asp Ala Gly Phe Phe
 9725 9730 9735
 Gly Ile Ser Pro Arg Glu Ala Arg Ala Met Asp Pro Gln Gln Arg
 9740 9745 9750
 Leu Leu Leu Glu Val Cys Trp Glu Ala Leu Glu Thr Ala Gly Ile
 9755 9760 9765
 Pro Ala His Thr Leu Ala Gly Thr Ser Thr Gly Val Phe Val Gly
 9770 9775 9780
 Ala Gly Ala Gln Ser Tyr Gly Ala Thr Asn Ser Asp Asp Ala Glu
 9785 9790 9795
 Gly Tyr Ala Met Thr Gly Gly Ala Thr Ser Val Met Ser Gly Arg
 9800 9805 9810
 Ile Ala Tyr Thr Leu Gly Leu Glu Gly Pro Ala Ile Thr Val Asp
 9815 9820 9825
 Thr Ala Cys Ser Ser Ser Leu Val Ala Ile His Leu Ala Cys Gln
 9830 9835 9840
 Ser Leu Arg Asn Asn Glu Ser Gln Leu Ala Leu Ala Gly Gly Val
 9845 9850 9855
 Thr Val Met Ser Thr Pro Ala Val Phe Thr Glu Phe Ser Arg Gln
 9860 9865 9870
 Arg Gly Leu Ala Pro Asp Gly Arg Cys Lys Ala Phe Ala Ala Thr

9875		9880		9885
Ala Asp Gly Thr Gly Phe Gly Glu Gly Ala Ala Val Leu Val Leu				
9890		9895		9900
Glu Arg Leu Ser Glu Ala Arg Arg Asn Asn His Pro Val Leu Ala				
9905		9910		9915
Ile Val Ala Gly Ser Ala Ile Asn Gln Asp Gly Ala Ser Asn Gly				
9920		9925		9930
Leu Thr Ala Pro His Gly Pro Ser Gln Gln Arg Val Ile Asn Gln				
9935		9940		9945
Ala Leu Ala Asn Ala Gly Leu Thr His Asp Gln Val Asp Ala Val				
9950		9955		9960
Glu Ala His Gly Thr Gly Thr Thr Leu Gly Asp Pro Ile Glu Ala				
9965		9970		9975
Gly Ala Leu His Ala Thr Tyr Gly His His His Thr Pro Asp Gln				
9980		9985		9990
Pro Leu Trp Leu Gly Ser Ile Lys Ser Asn Ile Gly His Thr Gln				
9995		10000		10005
Ala Ala Ala Gly Ala Ala Gly Val Val Lys Met Ile Gln Ala Ile				
10010		10015		10020
Thr His Ala Thr Leu Pro Ala Thr Leu His Val Asp Gln Pro Ser				
10025		10030		10035
Pro His Ile Asp Trp Ser Ser Gly Thr Val Arg Leu Leu Thr Glu				
10040		10045		10050
Pro Ile Gln Trp Pro Asn Thr Asp His Pro Arg Thr Ala Ala Val				
10055		10060		10065
Ser Ser Phe Gly Ile Ser Gly Thr Asn Ala His Leu Ile Leu Gln				
10070		10075		10080
Gln Pro Pro Thr Pro Asn Pro Thr Gln Thr Pro Glu Asp Cys Ser				
10085		10090		10095
Pro Ala Gln Ser Pro Cys Ala Thr Ile Thr Asp Ala Gly Thr Gly				
10100		10105		10110

Leu Ser 10115	Phe Val Pro Trp Val 10120	Ile Ser Ala Lys Ser 10125	Ala Glu Ala
Leu Ser 10130	Ala Gln Ala Ser Arg 10135	Leu Leu Thr Arg Leu 10140	Asp Asp Asp
Pro Val 10145	Val Asp Ala Ile Asp 10150	Leu Gly Trp Ser Leu 10155	Ile Ala Thr
Arg Ser 10160	Met Phe Glu His Arg 10165	Ala Val Val Val Gly 10170	Ala Asp Arg
His Gln 10175	Leu Gln Arg Gly Leu 10180	Ala Glu Leu Ala Ser 10185	Gly Asn Leu
Gly Ala 10190	Asp Val Val Val Gly 10195	Arg Ala Arg Ala Ala 10200	Gly Glu Thr
Val Met 10205	Val Phe Pro Gly Gln 10210	Gly Ser Gln Arg Leu 10215	Gly Met Gly
Ala Gln 10220	Leu Tyr Glu Gln Phe 10225	Pro Val Phe Ala Ala 10230	Ala Phe Asp
Asp Val 10235	Val Asp Ala Leu Asp 10240	Gln Tyr Leu Arg Leu 10245	Pro Leu Arg
Gln Val 10250	Met Trp Gly Asp Asp 10255	Glu Gly Leu Leu Asn 10260	Ser Thr Glu
Phe Ala 10265	Gln Pro Ser Leu Phe 10270	Ala Val Glu Val Ala 10275	Leu Phe Ala
Leu Leu 10280	Arg Phe Trp Gly Val 10285	Val Pro Asp Tyr Val 10290	Ile Gly His
Ser Val 10295	Gly Glu Leu Ala Ala 10300	Ala Gln Val Ala Gly 10305	Val Leu Ser
Leu Gln 10310	Asp Ala Ala Lys Leu 10315	Val Ser Ala Arg Gly 10320	Arg Leu Met
Gln Ala 10325	Leu Pro Ala Gly Gly 10330	Ala Met Val Ala Val 10335	Ala Ala Ser

Gln His 10340	Glu Val Glu Pro Leu 10345	Leu Val Glu Gly Val 10350	Asp Ile Ala
Ala Leu 10355	Asn Ala Pro Gly Ser 10360	Val Val Ile Ser Gly 10365	Asp Gln Ala
Ala Val 10370	Arg Leu Ile Ala Asn 10375	Arg Leu Ala Asp Arg 10380	Gly Tyr Arg
Ala His 10385	Glu Leu Ala Val Ser 10390	His Ala Phe His Ser 10395	Ser Leu Met
Glu Pro 10400	Met Leu Glu Gly Phe 10405	Ala Arg Leu Ala Ser 10410	Glu Ile Val
Val Glu 10415	Gln Pro Gln Ile Pro 10420	Leu Ile Ser Asn Val 10425	Thr Gly Gln
Leu Ala 10430	Asn Ala Asp Tyr Gly 10435	Ser Ala Gly Tyr Trp 10440	Val Asp His
Ile Arg 10445	Arg Pro Val Arg Phe 10450	Ala Asp Ser Val Ala 10455	Ser Leu Glu
Ala Met 10460	Gly Ala Ser Cys Phe 10465	Ile Glu Val Gly Pro 10470	Ala Ser Gly
Leu Gly 10475	Ala Ala Ile Glu Gln 10480	Ser Leu Lys Ser Ala 10485	Glu Pro Thr
Val Ser 10490	Val Ser Ala Leu Ser 10495	Thr Asp Lys Pro Glu 10500	Ser Val Ala
Val Leu 10505	Arg Ala Ala Ala Arg 10510	Leu Ser Thr Ser Gly 10515	Ile Pro Val
Asp Trp 10520	Gln Ser Val Phe Asp 10525	Gly Arg Ser Thr Gln 10530	Thr Val Asn
Leu Pro 10535	Thr Tyr Ala Phe Gln 10540	Arg Gln Arg Phe Trp 10545	Leu Asp Ala
Asn Arg 10550	Ile Gly Gln Gly Asp 10555	Pro Ala Ser Gln Pro 10560	Gln Ala Gln

Asn Val 10565	Glu Ser Arg Phe Trp 10570	Glu Ala Val Glu Arg 10575	Glu Asp Val
Asp Gly 10580	Leu Ala Asp Ser Ile 10585	Gly Val Thr Ala Ser 10590	Ala Met Gln
Thr Val 10595	Leu Pro Ala Leu Ser 10600	Ser Trp Arg Arg Ala 10605	Glu Arg Thr
Gln Ser 10610	Glu Leu Asp Ser Trp 10615	Arg Tyr Gln Val Thr 10620	Trp Leu Ser
Ser Pro 10625	Ala Thr Pro Ser Ser 10630	Ile Thr Leu Ser Gly 10635	Ile Trp Leu
Leu Ile 10640	Val Pro Ser Glu Leu 10645	Ala Lys Thr Asp Pro 10650	Val Ile Gly
Cys Ala 10655	Ala Ala Leu Glu Ala 10660	His Gly Ala Leu Val 10665	Thr Ile Ile
Thr Ile 10670	Phe Glu Pro Asp Phe 10675	Asn Arg Ser Leu Met 10680	Gly Ala Ser
Leu Lys 10685	Asp Ile Gly Ser His 10690	Ile Ser Gly Val Ile 10695	Ser Phe Leu
Gly Ile 10700	His Gly Ser Glu Phe 10705	Ser Asp Ser Gly Ala 10710	Val Lys Thr
Leu Asn 10715	Leu Val Gln Ala Met 10720	Gly Asp Val His Leu 10725	Asp Val Pro
Leu Trp 10730	Cys Leu Thr Gln Gly 10735	Ala Val Ser Ile Ser 10740	Ala Asp Asp
Leu Ile 10745	Arg Cys Ser Ser Ala 10750	Ala Leu Val Trp Gly 10755	Leu Gly Arg
Val Val 10760	Ala Leu Glu His Pro 10765	Gly Ser Trp Gly Gly 10770	Leu Val Asp
Leu Pro 10775	Glu Ser Pro Asp Asp 10780	Ala Ala Trp Glu Arg 10785	Leu Cys Ala

Leu Leu	Ala Gln Pro Thr Asp	Glu Asp Gln Phe Ala	Ile Arg Pro
10790	10795	10800	
Ser Gly	Val Phe Leu Arg Arg	Leu Ile His Ala Pro	Ala Thr Thr
10805	10810	10815	
Thr Ser	Lys Ser Ser Thr Ala	Trp Ala Pro Arg Gly	Thr Val Leu
10820	10825	10830	
Ile Thr	Gly Gly Thr Gly Ala	Leu Gly Ala His Val	Ala Arg Trp
10835	10840	10845	
Leu Ala	His Lys Tyr Glu Ser	Val Asp Leu Leu Leu	Thr Ser Arg
10850	10855	10860	
Arg Gly	Met Ala Ala Asp Gly	Ala Thr Glu Leu Val	Asp Asp Leu
10865	10870	10875	
Arg Thr	Ala Gly Ala Ser Val	Thr Val His Ala Cys	Asp Val Thr
10880	10885	10890	
Asp Arg	Thr Ser Val Glu Ala	Ala Ile Ala Gly Lys	Ser Leu Asp
10895	10900	10905	
Ala Val	Phe His Leu Ala Gly	Arg His Gln Pro Thr	Leu Leu Thr
10910	10915	10920	
Glu Leu	Glu Asp Glu Ser Phe	Ser Asp Glu Leu Ala	Pro Lys Val
10925	10930	10935	
His Gly	Ala Gln Val Leu Ser	Asp Ile Thr Ser Asn	Leu Thr Leu
10940	10945	10950	
Ser Ala	Phe Val Met Phe Ser	Ser Val Ala Gly Ile	Trp Gly Gly
10955	10960	10965	
Lys Ser	Gln Gly Ala Tyr Ala	Ala Ala Asn Ala Phe	Leu Asp Ser
10970	10975	10980	
Leu Ala	Glu Lys Arg Arg Thr	Leu Gly Leu Pro Ala	Thr Ser Val
10985	10990	10995	
Ala Trp	Gly Leu Trp Ala Gly	Gly Gly Met Gly Asp	Arg Pro Ser
11000	11005	11010	

Ala Ser 11015	Gly Leu Asn Leu Ile 11020	Gly Leu Lys Ser Met 11025	Ser Ala Asp
Leu Ala 11030	Val Gln Ala Leu Ser 11035	Asp Ala Ile Asp Arg 11040	Pro Gln Ala
Thr Leu 11045	Thr Val Ala Ser Val 11050	Asn Trp Asp Arg Phe 11055	Tyr Pro Thr
Phe Ala 11060	Leu Ala Arg Pro Arg 11065	Pro Phe Leu His Glu 11070	Ile Thr Glu
Val Met 11075	Ala Tyr Arg Glu Ser 11080	Met Arg Ser Ser Ser 11085	Ala Ser Thr
Ala Thr 11090	Leu Leu Thr Ser Lys 11095	Leu Ala Gly Leu Thr 11100	Ala Thr Glu
Gln Arg 11105	Ala Val Thr Arg Lys 11110	Leu Val Leu Asp Gln 11115	Ala Ala Ser
Val Leu 11120	Gly Tyr Ala Ser Thr 11125	Glu Ser Leu Asp Thr 11130	His Glu Ser
Phe Lys 11135	Asp Leu Gly Phe Asp 11140	Ser Leu Thr Ala Leu 11145	Glu Leu Arg
Asp His 11150	Leu Gln Thr Ala Thr 11155	Gly Leu Asn Leu Ser 11160	Ser Thr Leu
Ile Phe 11165	Asp His Pro Thr Pro 11170	His Ala Val Ala Glu 11175	His Leu Leu
Glu Gln 11180	Ile Pro Gly Ile Gly 11185	Ala Leu Val Pro Ala 11190	Pro Val Val
Ile Ala 11195	Ala Gly Arg Thr Glu 11200	Glu Pro Val Ala Val 11205	Val Gly Met
Ala Cys 11210	Arg Phe Pro Gly Gly 11215	Val Ala Ser Ala Asp 11220	Gln Leu Trp
Asp Leu 11225	Val Ile Ala Gly Arg 11230	Asp Val Val Gly Asn 11235	Phe Pro Ala

Asp Arg	Gly Trp Asp Val	Glu	Gly Leu Phe Asp	Pro	Asp Pro Asp
11240		11245		11250	
Ala Val	Gly Lys Thr Tyr	Thr	Arg Tyr Gly Ala	Phe	Leu Asp Asp
11255		11260		11265	
Ala Ala	Gly Phe Asp Ala	Gly	Phe Phe Gly Ile	Ser	Pro Arg Glu
11270		11275		11280	
Ala Arg	Ala Met Asp Pro	Gln	Gln Arg Leu Leu	Leu	Glu Val Cys
11285		11290		11295	
Trp Glu	Ala Leu Glu Thr	Ala	Gly Ile Pro Ala	His	Thr Leu Ala
11300		11305		11310	
Gly Thr	Ser Thr Gly Val	Phe	Ala Gly Ala Trp	Ala	Gln Ser Tyr
11315		11320		11325	
Gly Ala	Thr Asn Ser Asp	Asp	Ala Glu Gly Tyr	Ala	Met Thr Gly
11330		11335		11340	
Gly Ser	Thr Ser Val Met	Ser	Gly Arg Ile Ala	Tyr	Thr Leu Gly
11345		11350		11355	
Leu Glu	Gly Pro Ala Ile	Thr	Val Asp Thr Ala	Cys	Ser Ser Ser
11360		11365		11370	
Leu Val	Ala Ile His Leu	Ala	Cys Gln Ser Leu	Arg	Asn Asn Glu
11375		11380		11385	
Ser Gln	Leu Ala Leu Ala	Gly	Gly Val Thr Val	Met	Ser Thr Pro
11390		11395		11400	
Ala Ile	Phe Thr Glu Phe	Ser	Arg Gln Arg Gly	Leu	Ala Pro Asp
11405		11410		11415	
Gly Arg	Cys Lys Ala Phe	Ala	Ala Thr Ala Asp	Gly	Thr Gly Phe
11420		11425		11430	
Gly Glu	Gly Ala Ala Val	Leu	Val Leu Glu Arg	Leu	Ser Glu Ala
11435		11440		11445	
Arg Arg	Asn Asn His Pro	Val	Leu Ala Ile Val	Ala	Gly Ser Ala
11450		11455		11460	

Ile Asn	Gln Asp Gly Ala Ser	Asn Gly Leu Thr Ala	Pro His Gly
11465	11470	11475	
Pro Ser	Gln Gln Arg Val Ile	Asn Gln Ala Leu Ala	Asn Ala Gly
11480	11485	11490	
Leu Thr	His Asp Gln Val Asp	Ala Val Glu Ala His	Gly Thr Gly
11495	11500	11505	
Thr Thr	Leu Gly Asp Pro Ile	Glu Ala Ser Ala Leu	His Ala Thr
11510	11515	11520	
Tyr Gly	His His His Thr Pro	Asp Gln Pro Leu Trp	Leu Gly Ser
11525	11530	11535	
Ile Lys	Ser Asn Ile Gly His	Thr Gln Ala Ala Ala	Gly Ala Ala
11540	11545	11550	
Gly Val	Val Lys Met Ile Gln	Ala Ile Thr His Ala	Thr Leu Pro
11555	11560	11565	
Ala Thr	Leu His Val Asp Gln	Pro Ser Pro His Ile	Asp Trp Ser
11570	11575	11580	
Ser Gly	Thr Val Arg Leu Leu	Thr Glu Pro Ile Gln	Trp Pro Asn
11585	11590	11595	
Thr Asp	His Pro Arg Thr Ala	Ala Val Ser Ser Phe	Gly Ile Ser
11600	11605	11610	
Gly Thr	Asn Ala His Leu Ile	Leu Gln Gln Pro Pro	Thr Pro Asp
11615	11620	11625	
Thr Thr	Gln Thr Pro Asn Thr	Thr Thr Gly Ser Asp	Pro Ala Val
11630	11635	11640	
Gly Ser	Asp Pro Ala Val Gly	Val Leu Val Trp Pro	Leu Ser Ala
11645	11650	11655	
Arg Ser	Ala Pro Gly Leu Ser	Ala Gln Ala Ala Arg	Leu Tyr Gln
11660	11665	11670	
His Leu	Ser Ala His Pro Asp	Leu Asp Pro Ile Asp	Val Ala His
11675	11680	11685	

Ser Leu	Ala Thr Thr Arg	Ser	His His Pro His Arg	Ala Thr Ile
11690		11695		11700
Thr Thr	Ser Ile Glu His His	Ser Glu Asn Asn His	Asp Thr Thr	
11705		11710		11715
Asp Ala	Leu Ala Ala Leu His	Ala Leu Ala Asn Asn	Gly Thr His	
11720		11725		11730
Pro Leu	Leu Ser Arg Gly Leu	Leu Thr Pro Gln Gly	Pro Gly Lys	
11735		11740		11745
Thr Val	Phe Val Phe Pro Gly	Gln Gly Ser Gln Tyr	Pro Gly Met	
11750		11755		11760
Gly Ala	Asp Leu Tyr Arg Gln	Phe Pro Val Phe Ala	His Ala Leu	
11765		11770		11775
Asp Ala	Cys Asp Ala Ala Leu	Gln Pro Phe Thr Gly	Trp Ser Val	
11780		11785		11790
Leu Ala	Val Leu His Asp Glu	Pro Glu Ala Pro Ser	Leu Glu Arg	
11795		11800		11805
Val Asp	Val Val Gln Pro Val	Leu Phe Ser Val Met	Val Ser Leu	
11810		11815		11820
Ala Ala	Leu Trp Arg Trp Ala	Gly Ile Thr Pro Asp	Ala Val Ile	
11825		11830		11835
Gly His	Ser Gln Gly Glu Ile	Ala Ala Ala His Val	Ala Gly Ala	
11840		11845		11850
Leu Thr	Leu Pro Glu Ala Ala	Ala Val Val Ala Leu	Arg Ser Arg	
11855		11860		11865
Val Leu	Thr Asp Leu Ala Gly	Ala Gly Ala Met Ala	Ser Val Leu	
11870		11875		11880
Ser Pro	Glu Glu Pro Leu Thr	Gln Leu Leu Ala Arg	Trp Asp Gly	
11885		11890		11895
Lys Ile	Thr Val Ala Ala Val	Asn Gly Pro Ala Ser	Ala Val Val	
11900		11905		11910

Ser Gly 11915	Asp Thr Thr Ala Ile 11920	Thr Glu Leu Leu Ile 11925	Thr Cys Glu
His Glu 11930	Asn Ile Asp Ala Arg 11935	Ala Ile Pro Val Asp 11940	Tyr Pro Ser
His Ser 11945	Pro Tyr Met Glu His 11950	Ile Arg His Gln Phe 11955	Leu Asp Glu
Leu Pro 11960	Glu Leu Thr Pro Arg 11965	Pro Ser Thr Ile Ala 11970	Met Tyr Ser
Thr Val 11975	Asp Gly Glu Pro His 11980	Asp Thr Ala Tyr Asp 11985	Thr Thr Thr
Met Thr 11990	Ala Asp Tyr Trp Tyr 11995	Arg Asn Ile Arg Asn 12000	Thr Val Arg
Phe His 12005	Asp Thr Val Ala Ala 12010	Leu Leu Gly Ala Gly 12015	Glu Gln Val
Phe Leu 12020	Glu Leu Ser Pro His 12025	Pro Val Leu Thr Gln 12030	Ala Ile Thr
Asp Thr 12035	Val Glu Gln Ala Gly 12040	Gly Gly Gly Ala Ala 12045	Val Pro Ala
Leu Arg 12050	Lys Asp Arg Pro Asp 12055	Ala Val Ala Phe Ala 12060	Ala Ala Leu
Gly Gln 12065	Leu His Cys His Gly 12070	Ile Ser Pro Ser Trp 12075	Asn Val Leu
Tyr Cys 12080	Gln Ala Arg Pro Leu 12085	Thr Leu Pro Thr Tyr 12090	Ala Phe Gln
His Gln 12095	Arg Tyr Trp Leu Leu 12100	Pro Thr Ala Gly Asp 12105	Phe Ser Gly
Ala Asn 12110	Thr His Ala Met His 12115	Pro Leu Leu Asp Thr 12120	Ala Thr Glu
Leu Ala 12125	Glu Asn Arg Gly Trp 12130	Val Phe Thr Gly Arg 12135	Ile Ser Pro
Arg Thr	Gln Pro Trp Leu Asn	Glu His Ala Val Glu	Ser Ala Val

12140	12145	12150
Leu Phe . Pro Gly Thr Gly Phe	Val Glu Leu Ala Leu	His Val Ala
12155	12160	12165
Asp Arg Ala Gly Tyr Ser Ser	Val Asn Glu Leu Ile	Val His Thr
12170	12175	12180
Pro Leu Leu Leu Ala Gly His	Asp Thr Ala Asp Leu	Gln Ile Thr
12185	12190	12195
Val Thr Asp Thr Asp Asp Met	Gly Arg Gln Ser Leu	Asn Ile His
12200	12205	12210
Ser His Pro His Ile Gly His	Asp Asn Thr Thr Thr	Gly Asp Glu
12215	12220	12225
Gln Pro Glu Trp Val Leu His	Ala Ser Ala Val Leu	Thr Ala Gln
12230	12235	12240
Thr Thr Asp His Asn His Leu	Pro Leu Thr Pro Val	Pro Trp Pro
12245	12250	12255
Pro Pro Gly Thr Ala Ala Ile	Glu Val Asp Asp Phe	Tyr Asp Asp
12260	12265	12270
Leu Ala Ala Gln Gly Tyr Asn	Tyr Gly Pro Thr Phe	Gln Gly Val
12275	12280	12285
Gln Arg Ile Trp Arg Asp His	Ala Thr Pro Asp Val	Ile Tyr Ala
12290	12295	12300
Glu Val Glu Leu Pro Glu Asp	Thr Asp Ile Asp Gly	Tyr Gly Ile
12305	12310	12315
His Pro Ala Leu Phe Asp Ala	Ala Leu His Pro Leu	Leu Ala Leu
12320	12325	12330
Thr Gln Pro Pro Thr Asn Asp	Thr Asp Asp Thr Asn	Thr Ala Asp
12335	12340	12345
Thr Gly Asp Gln Val Arg Leu	Pro Tyr Ala Phe Thr	Gly Ile Ser
12350	12355	12360
Leu His Ala Thr His Ala Thr	Arg Leu Arg Val Arg	Leu Thr Arg
12365	12370	12375

Thr Gly 12380	Ala Asp Ala Ile Thr 12385	Val His Thr Ser Asp 12390	Thr Thr Gly
Ala Pro 12395	Val Ala Ile Ile Asp 12400	Ser Leu Ile Thr Arg 12405	Pro Leu Thr
Thr Ala 12410	Thr Gly Ser Ala Pro 12415	Ala Thr Thr Ala Ala 12420	Gly Leu Leu
His Leu 12425	Ser Trp Pro Pro His 12430	Pro Asp Thr Thr Thr 12435	Asp Thr Asp
Thr Asp 12440	Thr Asp Ala Leu Arg 12445	Tyr Gln Val Ile Ala 12450	Glu Pro Thr
Gln Gln 12455	Leu Pro Arg Tyr Leu 12460	His Asp Leu His Thr 12465	Ser Thr Thr
Glu Ala 12470	Asp Val Val Val Trp 12475	Pro Val Pro Val Pro 12480	Ser Asn Glu
Glu Leu 12485	Gln Ala His Gln Ala 12490	Ser Asp Thr Ala Val 12495	Ser Ser Arg
Ile His 12500	Thr Leu Thr Arg Gln 12505	Thr Leu Thr Val Val 12510	Gln Asp Trp
Leu Thr 12515	His Pro Asp Thr Thr 12520	Gly Thr Arg Leu Val 12525	Ile Val Thr
Arg His 12530	Gly Val Ser Thr Ser 12535	Ala His Asp Pro Val 12540	Pro Asp Leu
Ala His 12545	Ala Ala Val Trp Gly 12550	Leu Ile Arg Ser Ala 12555	Gln Asn Glu
His Pro 12560	Gly Arg Phe Thr Leu 12565	Leu Asp Thr Asp Asp 12570	Asn Thr Asn
Ser Asp 12575	Thr Leu Thr Thr Ala 12580	Leu Thr Leu Pro Thr 12585	Arg Glu Asn

Gln Leu	Ala Ile Arg Arg Asp	Thr Ile His Ile Pro	Arg Leu Thr
12590	12595	12600	
Arg His	Ser Ser Asp Gly Ala	Leu Thr Ala Pro Val	Val Val Asp
12605	12610	12615	
Pro Glu	Gly Thr Val Leu Ile	Thr Gly Gly Thr Gly	Thr Leu Gly
12620	12625	12630	
Ala Leu	Phe Ala Glu His Leu	Val Ser Ala His Gly	Val Arg His
12635	12640	12645	
Leu Leu	Leu Thr Ser Arg Arg	Gly Pro Gln Ala His	Gly Ala Thr
12650	12655	12660	
Asp Leu	Gln Gln Arg Leu Thr	Asp Leu Gly Ala His	Val Thr Ile
12665	12670	12675	
Thr Ala	Cys Asp Ile Ser Asp	Pro Glu Ala Leu Ala	Ala Leu Val
12680	12685	12690	
Asn Ser	Val Pro Thr Gln His	Arg Leu Thr Ala Val	Val His Thr
12695	12700	12705	
Ala Ala	Val Leu Ala Asp Thr	Pro Val Thr Glu Leu	Thr Gly Asp
12710	12715	12720	
Gln Leu	Asp Gln Val Leu Ala	Pro Lys Ile Asp Ala	Ala Trp Gln
12725	12730	12735	
Leu His	Gln Leu Thr Tyr Glu	His Asn Leu Ser Ala	Phe Ile Met
12740	12745	12750	
Phe Ser	Ser Met Ala Gly Met	Ile Gly Ser Pro Gly	Gln Gly Asn
12755	12760	12765	
Tyr Ala	Ala Ala Asn Thr Ala	Leu Asp Ala Leu Ala	Asp Tyr Arg
12770	12775	12780	
His Arg	Leu Gly Leu Pro Ala	Thr Ser Leu Ala Trp	Gly Tyr Trp
12785	12790	12795	
Gln Thr	His Thr Gly Leu Thr	Ala His Leu Thr Asp	Val Asp Leu
12800	12805	12810	
Ala Arg	Met Thr Arg Leu Gly	Leu Met Pro Ile Ala	Thr Ser His

12815	12820	12825
Gly Leu Ala Leu Phe Asp Ala	Ala Leu Ala Thr Gly	Gln Pro Val
12830	12835	12840
Ser Ile Pro Ala Pro Ile Asn	Thr His Thr Leu Ala	Arg His Ala
12845	12850	12855
Arg Asp Asn Thr Leu Ala Pro	Ile Leu Ser Ala Leu	Ile Thr Thr
12860	12865	12870
Pro Arg Arg Arg Ala Ala Ser	Ala Ala Thr Asp Leu	Ala Ala Arg
12875	12880	12885
Leu Asn Gly Leu Ser Pro Gln	Gln Gln Gln Gln Thr	Leu Ala Thr
12890	12895	12900
Leu Val Ala Ala Ala Thr Ala	Thr Val Leu Gly His	His Thr Pro
12905	12910	12915
Glu Ser Ile Ser Pro Ala Thr	Ala Phe Lys Asp Leu	Gly Ile Asp
12920	12925	12930
Ser Leu Thr Ala Leu Glu Leu	Arg Asn Thr Leu Thr	His Asn Thr
12935	12940	12945
Gly Leu Asp Leu Pro Pro Thr	Leu Ile Phe Asp His	Pro Thr Pro
12950	12955	12960
His Ala Val Ala Glu His Leu	Leu Glu Gln Ile Pro	Gly Ile Gly
12965	12970	12975
Ala Leu Val Pro Ala Pro Val	Val Ile Ala Ala Gly	Arg Thr Glu
12980	12985	12990
Glu Pro Val Ala Val Val Gly	Met Ala Cys Arg Phe	Pro Gly Gly
12995	13000	13005
Val Ala Ser Ala Asp Gln Leu	Trp Asp Leu Val Ile	Ala Gly Arg
13010	13015	13020
Asp Val Val Gly Asn Phe Pro	Ala Asp Arg Gly Trp	Asp Val Glu
13025	13030	13035
Gly Leu Phe Asp Pro Asp Pro	Asp Ala Val Gly Lys	Thr Tyr Thr
13040	13045	13050

Arg Tyr 13055	Gly Ala Phe Leu Asp 13060	Asp Ala Ala Gly Phe 13065	Asp Ala Gly
Phe Phe 13070	Gly Ile Ser Pro Arg 13075	Glu Ala Arg Ala Met 13080	Asp Pro Gln
Gln Arg 13085	Leu Leu Leu Glu Val 13090	Cys Trp Glu Ala Leu 13095	Glu Thr Ala
Gly Ile 13100	Pro Ala His Thr Leu 13105	Ala Gly Thr Ser Thr 13110	Gly Val Phe
Ala Gly 13115	Ala Trp Ala Gln Ser 13120	Tyr Gly Ala Thr Asn 13125	Ser Asp Asp
Ala Glu 13130	Gly Tyr Ala Met Thr 13135	Gly Gly Ser Thr Ser 13140	Val Met Ser
Gly Arg 13145	Ile Ala Tyr Thr Leu 13150	Gly Leu Glu Gly Pro 13155	Ala Ile Thr
Val Asp 13160	Thr Ala Cys Ser Ser 13165	Ser Leu Val Ala Ile 13170	His Leu Ala
Cys Gln 13175	Ser Leu Arg Asn Asn 13180	Glu Ser Gln Leu Ala 13185	Leu Ala Gly
Gly Val 13190	Thr Val Met Ser Thr 13195	Pro Ala Val Phe Thr 13200	Glu Phe Ser
Arg Gln 13205	Arg Gly Leu Ala Pro 13210	Asp Gly Arg Cys Lys 13215	Ala Phe Ala
Ala Thr 13220	Ala Asp Gly Thr Gly 13225	Phe Gly Glu Gly Ala 13230	Ala Val Leu
Val Leu 13235	Glu Arg Leu Ser Glu 13240	Ala Arg Arg Asn Asn 13245	His Pro Val
Leu Ala 13250	Ile Val Ala Gly Ser 13255	Ala Ile Asn Gln Asp 13260	Gly Ala Ser
Asn Gly 13265	Leu Thr Ala Pro His 13270	Gly Pro Ser Gln Gln 13275	Arg Val Ile

Asn Gln 13280	Ala Leu Ala Asn Ala 13285	Gly Leu Thr His Asp 13290	Gln Val Asp
Ala Val 13295	Glu Ala His Gly Thr 13300	Gly Thr Thr Leu Gly 13305	Asp Pro Ile
Glu Ala 13310	Ser Ala Leu His Ala 13315	Thr Tyr Gly His His 13320	His Thr Pro
Asp Gln 13325	Pro Leu Trp Leu Gly 13330	Ser Ile Lys Ser Asn 13335	Ile Gly His
Thr Gln 13340	Ala Ala Ala Gly Ala 13345	Ala Gly Val Val Lys 13350	Met Ile Gln
Ala Ile 13355	Thr His Ala Thr Leu 13360	Pro Ala Thr Leu His 13365	Val Asp Gln
Pro Ser 13370	Pro His Ile Asp Trp 13375	Ser Ser Gly Thr Val 13380	Arg Leu Leu
Thr Glu 13385	Pro Ile Gln Trp Pro 13390	Asn Thr Asp His Pro 13395	Arg Thr Ala
Ala Val 13400	Ser Ser Phe Gly Ile 13405	Ser Gly Thr Asn Ala 13410	His Leu Ile
Leu Gln 13415	Gln Pro Pro Thr Pro 13420	Asp Thr Thr Gln Thr 13425	Pro Asn Thr
Thr Thr 13430	Gly Ser Asp Pro Ala 13435	Val Gly Ser Asp Pro 13440	Ala Val Gly
Val Leu 13445	Val Trp Pro Leu Ser 13450	Ala Arg Ser Ala Pro 13455	Gly Leu Ser
Ala Gln 13460	Ala Ala Arg Leu Tyr 13465	Gln His Leu Ser Ala 13470	His Pro Asp
Leu Asp 13475	Pro Ile Asp Val Ala 13480	His Ser Leu Ala Thr 13485	Thr Arg Ser
His His 13490	Pro His Arg Ala Thr 13495	Ile Thr Thr Ser Ile 13500	Glu His His

Ser Glu 13505	Asn Asn His Asp Thr 13510	Thr Asp Ala Leu Ala 13515	Ala Leu His
Ala Leu 13520	Ala Asn Asn Gly Thr 13525	His Pro Leu Leu Ser 13530	Arg Gly Leu
Leu Thr 13535	Pro Gln Gly Pro Gly 13540	Lys Thr Val Phe Val 13545	Phe Pro Gly
Gln Gly 13550	Ser Gln Tyr Pro Gly 13555	Met Gly Ala Asp Leu 13560	Tyr Arg Gln
Phe Pro 13565	Val Phe Ala His Ala 13570	Leu Asp Ala Cys Asp 13575	Ala Ala Leu
Gln Pro 13580	Phe Thr Gly Trp Ser 13585	Val Leu Ala Val Leu 13590	His Asp Glu
Pro Glu 13595	Ala Pro Ser Leu Glu 13600	Arg Val Asp Val Val 13605	Gln Pro Val
Leu Phe 13610	Ser Val Met Val Ser 13615	Leu Ala Ala Leu Trp 13620	Arg Trp Ala
Gly Ile 13625	Thr Pro Asp Ala Val 13630	Ile Gly His Ser Gln 13635	Gly Glu Ile
Ala Ala 13640	Ala His Val Ala Gly 13645	Ala Leu Thr Leu Pro 13650	Glu Ala Ala
Ala Val 13655	Val Ala Leu Arg Ser 13660	Arg Val Leu Thr Asp 13665	Leu Ala Gly
Ala Gly 13670	Ala Met Ala Ser Val 13675	Leu Ser Pro Glu Glu 13680	Pro Leu Thr
Gln Leu 13685	Leu Ala Arg Trp Asp 13690	Gly Lys Ile Thr Val 13695	Ala Ala Val
Asn Gly 13700	Pro Ala Ser Ala Val 13705	Val Ser Gly Asp Thr 13710	Thr Ala Ile
Thr Glu 13715	Leu Leu Ile Thr Cys 13720	Glu His Glu Asn Ile 13725	Asp Ala Arg

Ala Ile 13730	Pro Val Asp Tyr Pro 13735	Ser His Ser Pro Tyr 13740	Met Glu His
Ile Arg 13745	His Gln Phe Leu Asp 13750	Glu Leu Pro Glu Leu 13755	Thr Pro Arg
Pro Ser 13760	Thr Ile Ala Met Tyr 13765	Ser Thr Val Asp Gly 13770	Glu Pro His
Asp Thr 13775	Ala Tyr Asp Thr Thr 13780	Thr Met Thr Ala Asp 13785	Tyr Trp Tyr
Arg Asn 13790	Ile Arg Asn Thr Val 13795	Arg Phe His Asp Thr 13800	Val Ala Ala
Leu Leu 13805	Gly Ala Gly Glu Gln 13810	Val Phe Leu Glu Leu 13815	Ser Pro His
Pro Val 13820	Leu Thr Gln Ala Ile 13825	Thr Asp Thr Val Glu 13830	Gln Ala Gly
Gly Gly 13835	Gly Ala Ala Val Pro 13840	Ala Leu Arg Lys Asp 13845	Arg Pro Asp
Ala Val 13850	Ala Phe Ala Ala Ala 13855	Leu Gly Gln Leu His 13860	Cys His Gly
Ile Ser 13865	Pro Ser Trp Asn Val 13870	Leu Tyr Cys Gln Ala 13875	Arg Pro Leu
Thr Leu 13880	Pro Thr Tyr Ala Phe 13885	Gln His Gln Arg Tyr 13890	Trp Leu Leu
Pro Thr 13895	Ala Gly Asp Phe Ser 13900	Gly Ala Asn Thr His 13905	Ala Met His
Pro Leu 13910	Leu Asp Thr Ala Thr 13915	Glu Leu Ala Glu Asn 13920	Arg Gly Trp
Val Phe 13925	Thr Gly Arg Ile Ser 13930	Pro Arg Thr Gln Pro 13935	Trp Leu Asn
Glu His 13940	Ala Val Glu Ser Ala 13945	Val Leu Phe Pro Gly 13950	Thr Gly Phe

Val Glu 13955	Leu Ala Leu His 13960	Val Ala Asp Arg Ala Gly 13965	Tyr Ser Ser
Val Asn 13970	Glu Leu Ile Val His 13975	Thr Pro Leu Leu Leu 13980	Ala Gly His
Asp Thr 13985	Ala Asp Leu Gln Ile 13990	Thr Val Thr Asp Thr 13995	Asp Asp Met
Gly Arg 14000	Gln Ser Leu Asn Ile 14005	His Ser Arg Pro His 14010	Ile Gly His
Asp Asn 14015	Thr Thr Thr Gly Asp 14020	Glu Gln Pro Glu Trp 14025	Val Leu His
Ala Ser 14030	Ala Val Leu Thr Ala 14035	Gln Thr Thr Asp His 14040	Asn His Leu
Pro Leu 14045	Thr Pro Val Pro Trp 14050	Pro Pro Pro Gly Thr 14055	Ala Ala Ile
Glu Val 14060	Asp Asp Phe Tyr Asp 14065	Asp Leu Ala Ala Gln 14070	Gly Tyr Asn
Tyr Gly 14075	Pro Thr Phe Gln Gly 14080	Val Gln Arg Ile Trp 14085	Arg Asp His
Ala Thr 14090	Pro Asp Val Ile Tyr 14095	Ala Glu Val Glu Leu 14100	Pro Glu Asp
Thr Asp 14105	Ile Asp Gly Tyr Gly 14110	Ile His Pro Ala Leu 14115	Phe Asp Ala
Ala Leu 14120	His Pro Leu Leu Ala 14125	Leu Thr Gln Pro Pro 14130	Thr Asn Asp
Thr Asp 14135	Asp Thr Asn Thr Ala 14140	Asp Thr Gly Asp Gln 14145	Val Arg Leu
Pro Tyr 14150	Ala Phe Thr Gly Ile 14155	Ser Leu His Ala Thr 14160	His Ala Thr
Arg Leu 14165	Arg Val Arg Leu Thr 14170	Arg Thr Gly Ala Asp 14175	Ala Ile Thr

Val His	Thr Ser Asp Thr Thr	Gly Ala Pro Val Ala	Ile Ile Asp
14180	14185	14190	
Ser Leu	Ile Thr Arg Pro Leu	Thr Thr Ala Thr Gly	Ser Ala Pro
14195	14200	14205	
Ala Thr	Thr Ala Ala Gly Leu	Leu His Leu Ser Trp	Pro Pro His
14210	14215	14220	
Pro Asp	Thr Thr Thr Asp Thr	Asp Thr Asp Thr Asp	Ala Leu Arg
14225	14230	14235	
Tyr Gln	Val Ile Ala Glu Pro	Thr Gln Gln Leu Pro	Arg Tyr Leu
14240	14245	14250	
His Asp	Leu His Thr Ser Thr	Asp Leu His Thr Ser	Thr Thr Glu
14255	14260	14265	
Ala Asp	Val Val Val Trp Pro	Val Pro Val Pro Ser	Asn Glu Glu
14270	14275	14280	
Leu Gln	Ala His Gln Ala Ser	Asp Thr Ala Val Ser	Ser Arg Ile
14285	14290	14295	
His Thr	Leu Thr Arg Gln Thr	Leu Thr Val Val Gln	Asp Trp Leu
14300	14305	14310	
Thr His	Pro Asp Thr Thr Gly	Thr Arg Leu Val Ile	Val Thr Arg
14315	14320	14325	
His Gly	Val Ser Thr Ser Ala	His Asp Pro Val Pro	Asp Leu Ala
14330	14335	14340	
His Ala	Ala Val Trp Gly Leu	Ile Arg Ser Ala Gln	Asn Glu His
14345	14350	14355	
Pro Gly	Arg Phe Thr Leu Leu	Asp Thr Asp Asp Asn	Thr Asn Ser
14360	14365	14370	
Asp Thr	Leu Thr Thr Ala Leu	Thr Leu Pro Thr Arg	Glu Asn Gln
14375	14380	14385	
Leu Ala	Ile Arg Arg Asp Thr	Ile His Ile Pro Arg	Leu Thr Arg
14390	14395	14400	

Thr Ala 14405	Val Leu Thr Pro Pro 14410	Asp Ser Gly Pro Trp 14415	Arg Leu Asp
Thr Thr 14420	Gly Lys Gly Asp Leu 14425	Ala Asn Leu Ala Leu 14430	Leu Pro Thr
Ala His 14435	Thr Ala Leu Ala Ser 14440	Gly Gln Ile Arg Ile 14445	Asp Val Arg
Ala Ala 14450	Gly Leu Asn Phe His 14455	Asp Val Val Val Ala 14460	Leu Gly Leu
Ile Pro 14465	Asp Asp Gly Phe Gly 14470	Gly Glu Ala Ala Gly 14475	Val Ile Ser
Glu Ile 14480	Gly Pro Asp Val Tyr 14485	Gly Phe Ala Val Gly 14490	Asp Ala Val
Thr Gly 14495	Met Thr Val Ser Gly 14500	Ala Phe Ala Pro Ser 14505	Thr Val Ala
Asp His 14510	Arg Met Val Met Thr 14515	Ile Pro Ala Arg Trp 14520	Ser Phe Pro
Gln Ala 14525	Ala Ser Ile Pro Val 14530	Val Phe Leu Thr Ala 14535	Tyr Ile Ala
Leu Ala 14540	Glu Ile Ser Gly Leu 14545	Ser Arg Gly Gln Arg 14550	Val Leu Ile
His Ala 14555	Gly Thr Gly Gly Val 14560	Gly Met Ala Ala Ile 14565	Gln Leu Ala
His His 14570	Leu Gly Ala Glu Val 14575	Phe Ala Thr Ala Ser 14580	Ala Ala Lys
Trp Ser 14585	Thr Leu Glu Ala Leu 14590	Gly Val Pro Arg Asp 14595	His Ile Ala
Ser Ser 14600	Arg Thr Leu Asp Phe 14605	Ser Asn Ala Phe Leu 14610	Asp Ala Thr
Asn Gly 14615	Ala Gly Val Asp Val 14620	Val Leu Asn Cys Leu 14625	Ser Gly Glu

Phe Val	Glu Ala Ser Leu Ala	Leu Leu Pro Arg Gly	Gly His Phe
14630	14635	14640	
Val Glu	Ile Gly Lys Thr Asp	Ile Arg Asp Thr Glu	Val Ile Ala
14645	14650	14655	
Ala Thr	His Pro Gly Val Ile	Tyr Arg Ala Leu Asp	Leu Leu Ser
14660	14665	14670	
Val Ser	Pro Asp His Ile Gln	Arg Thr Leu Ala Gln	Leu Ser Pro
14675	14680	14685	
Leu Phe	Ala Thr Asp Thr Leu	Lys Pro Leu Pro Thr	Thr Asn Tyr
14690	14695	14700	
Ser Ile	Tyr Gln Ala Ile Ser	Ala Leu Arg Asp Met	Ser Gln Ala
14705	14710	14715	
Arg His	Thr Gly Lys Ile Val	Leu Thr Ala Pro Val	Val Val Asp
14720	14725	14730	
Pro Glu	Gly Thr Val Leu Ile	Thr Gly Gly Thr Gly	Thr Leu Gly
14735	14740	14745	
Ala Leu	Phe Ala Glu His Leu	Val Ser Ala His Gly	Val Arg His
14750	14755	14760	
Leu Leu	Leu Thr Ser Arg Arg	Gly Pro Gln Ala His	Gly Ala Thr
14765	14770	14775	
Asp Leu	Gln Gln Arg Leu Thr	Asp Leu Gly Ala His	Val Thr Ile
14780	14785	14790	
Thr Ala	Cys Asp Ile Ser Asp	Pro Glu Ala Leu Ala	Ala Leu Val
14795	14800	14805	
Asn Ser	Val Pro Thr Gln His	Arg Leu Thr Ala Val	Val His Thr
14810	14815	14820	
Ala Ala	Val Leu Ala Asp Thr	Pro Val Thr Glu Leu	Thr Gly Asp
14825	14830	14835	
Gln Leu	Asp Gln Val Leu Ala	Pro Lys Ile Asp Ala	Ala Trp Gln
14840	14845	14850	

Leu His 14855	Gln Leu Thr Tyr Glu 14860	His Asn Leu Ser Ala 14865	Phe Ile Met
Phe Ser 14870	Ser Met Ala Gly Met 14875	Ile Gly Ser Pro Gly 14880	Gln Gly Asn
Tyr Ala 14885	Ala Ala Asn Thr Ala 14890	Leu Asp Ala Leu Ala 14895	Asp Tyr Arg
His Arg 14900	Leu Gly Leu Pro Ala 14905	Thr Ser Leu Ala Trp 14910	Gly Tyr Trp
Gln Thr 14915	Arg Thr Gly Val Thr 14920	Ala His Leu Thr Asp 14925	Val Asp Leu
Ala Arg 14930	Met Thr Arg Leu Gly 14935	Leu Met Pro Ile Ala 14940	Thr Ser His
Gly Leu 14945	Ala Leu Phe Asp Ala 14950	Ala Leu Ala Thr Gly 14955	Gln Pro Val
Ser Ile 14960	Pro Ala Pro Ile Asn 14965	Thr His Thr Leu Ala 14970	Arg His Ala
Arg Asp 14975	Asn Thr Leu Thr Pro 14980	Ile Leu Ser Ala Leu 14985	Ile Thr Thr
Pro Arg 14990	Arg Arg Ala Ala Ser 14995	Ala Ala Thr Asp Leu 15000	Ala Ala Arg
Leu Asn 15005	Gly Leu Ser Pro Gln 15010	Gln Gln Gln Gln Thr 15015	Leu Ala Thr
Leu Val 15020	Ala Ala Ala Thr Ala 15025	Thr Val Leu Gly His 15030	His Thr Pro
Glu Ser 15035	Ile Ser Pro Ala Thr 15040	Ala Phe Lys Asp Leu 15045	Gly Ile Asp
Ser Leu 15050	Thr Ala Leu Glu Leu 15055	Arg Asn Thr Leu Thr 15060	His Asn Thr
Gly Leu 15065	Asp Leu Pro Pro Thr 15070	Leu Ile Phe Asp His 15075	Pro Thr Pro
Thr Ala	Leu Thr Gln His Leu	His Thr Arg Leu Thr	Thr Gly Ala

15080		15085		15090
Leu Val 15095	Pro Ala Pro Val Val	Ile Ala Ala Gly Arg 15100	Thr Glu Glu 15105	
Pro Val 15110	Ala Val Val Gly Met	Ala Cys Arg Phe Pro 15115	Gly Gly Val 15120	
Ala Ser 15125	Ala Asp Gln Leu Trp	Asp Leu Val Ile Ala 15130	Gly Arg Asp 15135	
Val Val 15140	Gly Asn Phe Pro Ala	Asp Arg Gly Trp Asp 15145	Val Ala Gly 15150	
Leu Phe 15155	Asp Pro Asp Pro Asp	Ala Val Gly Lys Thr 15160	Tyr Thr Arg 15165	
Tyr Gly 15170	Ala Phe Leu Asp Asp	Ala Ala Gly Phe Asp 15175	Ala Gly Phe 15180	
Phe Gly 15185	Ile Ser Pro Arg Glu	Ala Arg Ala Met Asp 15190	Pro Gln Gln 15195	
Arg Leu 15200	Leu Leu Glu Val Cys	Trp Glu Ala Leu Glu 15205	Thr Ala Gly 15210	
Ile Pro 15215	Ala His Thr Leu Ala	Gly Thr Ser Thr Gly 15220	Val Phe Val 15225	
Gly Ala 15230	Gly Ala Gln Ser Tyr	Gly Ala Thr Asn Ser 15235	Asp Asp Ala 15240	
Glu Gly 15245	Tyr Ala Met Thr Gly	Gly Ala Ile Ser Val 15250	Met Ser Gly 15255	
Arg Ile 15260	Ala Tyr Thr Leu Gly	Leu Glu Gly Pro Ala 15265	Ile Thr Val 15270	
Asp Thr 15275	Ala Cys Ser Ser Ser	Leu Val Ala Ile His 15280	Leu Ala Cys 15285	
Gln Ser 15290	Leu Arg Asn Asn Glu	Ser Gln Leu Ala Leu 15295	Ala Gly Gly 15300	
Val Thr	Val Met Ser Thr Pro	Ala Val Phe Thr Asp	Phe Ser Arg	

15305		15310		15315
Gln Arg	Gly Leu Ala Pro Asp	Gly Arg Cys Lys Ala	Phe Ala Ala	
15320	15325	15330		
Thr Ala	Asp Gly Thr Gly Phe	Gly Glu Gly Ala Ala	Val Leu Val	
15335	15340	15345		
Leu Glu	Arg Leu Ser Glu Ala	Arg Arg Asn Asn His	Pro Val Leu	
15350	15355	15360		
Ala Ile	Val Ala Gly Ser Ala	Ile Asn Gln Asp Gly	Ala Ser Asn	
15365	15370	15375		
Gly Leu	Thr Ala Pro His Gly	Pro Ser Gln Gln Arg	Val Ile Asn	
15380	15385	15390		
Gln Ala	Leu Ala Asn Ala Gly	Leu Thr His Asp Gln	Val Asp Ala	
15395	15400	15405		
Val Glu	Ala His Gly Thr Gly	Thr Thr Leu Gly Asp	Pro Ile Glu	
15410	15415	15420		
Ala Gly	Ala Leu His Ala Thr	Tyr Gly His His His	Thr Pro Asp	
15425	15430	15435		
Gln Pro	Leu Trp Leu Gly Ser	Ile Lys Ser Asn Ile	Gly His Thr	
15440	15445	15450		
Gln Ala	Ala Ala Gly Ala Ala	Gly Val Val Lys Met	Ile Gln Ala	
15455	15460	15465		
Ile Thr	His Ala Thr Leu Pro	Ala Thr Leu His Val	Asp Gln Pro	
15470	15475	15480		
Ser Pro	His Ile Asp Trp Ser	Ser Gly Thr Val Arg	Leu Leu Thr	
15485	15490	15495		
Glu Pro	Ile Gln Trp Pro Asn	Thr Asp His Pro Arg	Thr Ala Ala	
15500	15505	15510		
Val Ser	Ser Phe Gly Ile Ser	Gly Thr Asn Ala His	Leu Ile Leu	
15515	15520	15525		

Gln Gln	Pro Pro Thr	Pro Asp	Thr Thr Gln Thr	Pro	Asn Pro Thr
15530		15535		15540	
Thr Gly	Ser Asp Pro	Ala Val	Gly Ser Asp Ser	Ala	Val Gly Ser
15545		15550		15555	
Asp Pro	Ala Val Gly	Val Leu	Val Trp Pro Leu	Ser	Ala Arg Ser
15560		15565		15570	
Ala Pro	Gly Leu Ser	Ala Gln	Ala Ala Arg Leu	Tyr	Gln His Leu
15575		15580		15585	
Ser Ala	His Pro Asp	Leu Asp	Pro Ile Asp Val	Ala	His Ser Leu
15590		15595		15600	
Ala Thr	Thr Arg Ser	His His	Pro His Arg Ala	Thr	Ile Thr Thr
15605		15610		15615	
Ser Ile	Glu His His	Ser Glu	Asn Asn His Asp	Thr	Thr Asp Ala
15620		15625		15630	
Leu Ala	Ala Leu His	Ala Leu	Ala Asn Asn Gly	Thr	His Pro Leu
15635		15640		15645	
Leu Ser	Arg Gly Leu	Leu Thr	Pro Gln Gly Pro	Gly	Lys Thr Val
15650		15655		15660	
Phe Val	Phe Pro Gly	Gln Gly	Ser Gln Tyr Pro	Gly	Met Gly Ala
15665		15670		15675	
Asp Leu	Tyr Arg Gln	Phe Pro	Val Phe Ala His	Ala	Leu Asp Glu
15680		15685		15690	
Val Ala	Ala Ala Leu	Asn Pro	His Leu Asp Val	Ala	Leu Leu Glu
15695		15700		15705	
Val Met	Phe Ser Gln	Gln Asp	Thr Ala Met Ala	Gln	Leu Leu Asp
15710		15715		15720	
Gln Thr	Phe Tyr Ala	Gln Pro	Ala Leu Phe Ala	Leu	Gly Thr Ala
15725		15730		15735	
Leu His	Arg Leu Phe	Thr His	Ala Gly Ile His	Pro	Asp Tyr Leu
15740		15745		15750	
Leu Gly	His Ser Ile	Gly Glu	Leu Thr Ala Ala	Tyr	Ala Ala Gly

15755		15760		15765
Val Leu	Ser Leu Gln Asp Ala	Ala Thr Leu Val Thr	Ser Arg Gly	
15770	15775	15780		
Arg Leu	Met Gln Ser Cys Thr	Pro Gly Gly Thr Met	Leu Ala Leu	
15785	15790	15795		
Gln Ala	Ser Glu Ala Glu Val	Gln Pro Leu Leu Glu	Gly Leu Asp	
15800	15805	15810		
His Ala	Val Ser Ile Ala Ala	Ile Asn Gly Ala Thr	Ser Ile Val	
15815	15820	15825		
Leu Ser	Gly Asp His Asp Ser	Leu Glu Gln Ile Gly	Glu His Phe	
15830	15835	15840		
Ile Thr	Gln Asp Arg Arg Thr	Thr Arg Leu Gln Val	Ser His Ala	
15845	15850	15855		
Phe His	Ser Pro His Met Asp	Pro Ile Leu Glu Gln	Phe Arg Gln	
15860	15865	15870		
Ile Ala	Ala Gln Leu Thr Phe	Ser Ala Pro Thr Leu	Pro Ile Leu	
15875	15880	15885		
Ser Asn	Leu Thr Gly Gln Ile	Ala Arg His Asp Gln	Leu Ala Ser	
15890	15895	15900		
Pro Asp	Tyr Trp Thr Gln Gln	Leu Arg Asn Thr Val	Arg Phe His	
15905	15910	15915		
Asp Thr	Val Ala Ala Leu Leu	Gly Ala Gly Glu Gln	Val Phe Leu	
15920	15925	15930		
Glu Leu	Ser Pro His Pro Val	Leu Thr Gln Ala Ile	Thr Asp Thr	
15935	15940	15945		
Val Glu	Gln Ala Gly Gly Gly	Gly Ala Ala Val Pro	Ala Leu Arg	
15950	15955	15960		
Lys Asp	Arg Pro Asp Ala Val	Ala Phe Ala Ala Ala	Leu Gly Gln	
15965	15970	15975		
Leu His	Cys His Gly Ile Ser	Pro Ser Trp Asn Val	Leu Tyr Cys	
15980	15985	15990		

Gln Ala 15995	Arg Pro Leu Thr	Leu 16000	Pro Thr Tyr Ala Phe 16005	Gln His Gln
Arg Tyr 16010	Trp Leu Leu Pro Thr	Ala Gly Asp Phe Ser 16020	Gly Ala Asn	
Thr His 16025	Ala Met His Pro Leu	Leu Asp Thr Ala Thr 16035	Glu Leu Ala	
Glu Asn 16040	Arg Gly Trp Val Phe	Thr Gly Arg Ile Ser 16050	Pro Arg Thr	
Gln Pro 16055	Trp Leu Asn Glu His	Ala Val Glu Ser Ala 16065	Val Leu Phe	
Pro Asn 16070	Thr Gly Phe Val Glu	Leu Ala Leu His Val 16080	Ala Asp Arg	
Ala Gly 16085	Tyr Ser Ser Val Asn	Glu Leu Ile Val His 16095	Thr Pro Leu	
Leu Leu 16100	Ala Gly His Asp Thr	Ala Asp Leu Gln Ile 16110	Thr Val Thr	
Asp Thr 16115	Asp Asp Met Gly Arg	Gln Ser Leu Asn Ile 16125	His Ser Arg	
Pro His 16130	Ile Gly His Asp Asn	Thr Thr Thr Gly Asp 16140	Glu Gln Pro	
Glu Trp 16145	Val Leu His Ala Ser	Ala Val Leu Thr Ala 16155	Gln Thr Thr	
Asp His 16160	Asn His Leu Pro Leu	Thr Pro Val Pro Trp 16170	Pro Pro Pro	
Gly Thr 16175	Ala Ala Ile Glu Val	Asp Asp Phe Tyr Asp 16185	Asp Leu Ala	
Ala Gln 16190	Gly Tyr Asn Tyr Gly	Pro Thr Phe Gln Gly 16200	Val Gln Arg	
Ile Trp 16205	Arg Asp His Ala Thr	Pro Asp Val Ile Tyr 16215	Ala Glu Val	

Glu Leu 16220	Pro Glu Asp Thr Asp 16225	Ile Asp Gly Tyr Gly 16230	Ile His Pro
Ala Leu 16235	Phe Asp Ala Ala Leu 16240	His Pro Leu Leu Ala 16245	Leu Thr Gln
Pro Pro 16250	Thr Asn Asp Thr Asp 16255	Asp Thr Asn Thr Ala 16260	Asp Thr Gly
Asp Gln 16265	Val Arg Leu Pro Tyr 16270	Ala Phe Thr Gly Ile 16275	Ser Leu His
Ala Thr 16280	His Ala Thr Arg Leu 16285	Arg Val Arg Leu Thr 16290	Arg Thr Gly
Ala Asp 16295	Ala Ile Thr Val His 16300	Thr Ser Asp Thr Thr 16305	Gly Ala Pro
Val Ala 16310	Ile Ile Asp Ser Leu 16315	Ile Thr Arg Pro Leu 16320	Thr Thr Ala
Thr Gly 16325	Ser Ala Pro Ala Thr 16330	Thr Ala Ala Gly Leu 16335	Leu His Leu
Ser Trp 16340	Pro Pro His Pro Asp 16345	Thr Thr Thr Asp Thr 16350	Asp Thr Asp
Thr Asp 16355	Thr Asp Ala Leu Arg 16360	Tyr Gln Val Ile Ala 16365	Glu Pro Thr
Gln Gln 16370	Leu Pro Arg Tyr Leu 16375	His Asp Leu His Thr 16380	Ser Thr Asp
Leu His 16385	Thr Ser Thr Thr Glu 16390	Ala Asp Val Val Val 16395	Trp Pro Val
Pro Val 16400	Pro Ser Asn Glu Glu 16405	Leu Gln Ala His Gln 16410	Ala Ser Asp
Thr Ala 16415	Val Ser Ser Arg Ile 16420	His Thr Leu Thr Arg 16425	Gln Thr Leu
Thr Val	Val Gln Asp Trp Leu	Thr His Pro Asp Thr	Thr Gly Thr

16430		16435		16440
Arg Leu Val Ile Val Thr	Arg His Gly Val Ser Thr	Ser Ala His		
16445	16450	16455		
Asp Pro Val Pro Asp Leu	Ala His Ala Ala Val Trp	Gly Leu Ile		
16460	16465	16470		
Arg Ser Ala Gln Asn Glu	His Pro Gly Arg Phe Thr	Leu Leu Asp		
16475	16480	16485		
Thr Asp Asp Asn Thr Asn	Ser Asp Thr Leu Thr Thr	Ala Leu Thr		
16490	16495	16500		
Leu Pro Thr Arg Glu Asn	Gln Leu Ala Ile Arg Arg	Asp Thr Ile		
16505	16510	16515		
His Ile Pro Arg Leu Thr	Arg His Ser Ser Asp Gly	Ala Leu Thr		
16520	16525	16530		
Ala Pro Val Val Val Asp	Pro Glu Gly Thr Val Leu	Ile Thr Gly		
16535	16540	16545		
Gly Thr Gly Thr Leu Gly	Ala Leu Phe Ala Glu His	Leu Val Ser		
16550	16555	16560		
Ala His Gly Val Arg His	Leu Leu Leu Thr Ser Arg	Arg Gly Pro		
16565	16570	16575		
Gln Ala His Gly Ala Thr	Asp Leu Gln Gln Arg Leu	Thr Asp Leu		
16580	16585	16590		
Gly Ala His Val Thr Ile	Thr Ala Cys Asp Ile Ser	Asp Pro Glu		
16595	16600	16605		
Ala Leu Ala Ala Leu Val	Asn Ser Val Pro Thr Gln	His Arg Leu		
16610	16615	16620		
Thr Ala Val Val His Thr	Ala Ala Val Leu Ala Asp	Thr Pro Val		
16625	16630	16635		
Thr Glu Leu Thr Gly Asp	Gln Leu Asp Gln Val Leu	Ala Pro Lys		
16640	16645	16650		
Ile Asp Ala Ala Trp Gln	Leu His Gln Leu Thr Tyr	Glu His Asn		
16655	16660	16665		

Leu Ser	Ala Phe Ile Met Phe	Ser Ser Met Ala Gly	Met Ile Gly
16670	16675	16680	
Ser Pro	Gly Gln Gly Asn Tyr	Ala Ala Ala Asn Thr	Ala Leu Asp
16685	16690	16695	
Ala Leu	Ala Asp Tyr Arg His	Arg Leu Gly Leu Pro	Ala Thr Ser
16700	16705	16710	
Leu Ala	Trp Gly Tyr Trp Gln	Thr His Thr Gly Leu	Thr Ala His
16715	16720	16725	
Leu Thr	Asp Val Asp Leu Ala	Arg Met Thr Arg Leu	Gly Leu Met
16730	16735	16740	
Pro Ile	Ala Thr Ser His Gly	Leu Ala Leu Phe Asp	Ala Ala Leu
16745	16750	16755	
Ala Thr	Gly Gln Pro Val Ser	Ile Pro Ala Pro Ile	Asn Thr His
16760	16765	16770	
Thr Leu	Ala Arg His Ala Arg	Asp Asn Thr Leu Ala	Pro Ile Leu
16775	16780	16785	
Ser Ala	Leu Ile Thr Thr Pro	Arg Arg Arg Ala Ala	Ser Ala Ala
16790	16795	16800	
Thr Asp	Leu Ala Ala Arg Leu	Asn Gly Leu Ser Pro	Gln Gln Gln
16805	16810	16815	
Gln Gln	Thr Leu Ala Thr Leu	Val Ala Ala Ala Thr	Ala Thr Val
16820	16825	16830	
Leu Gly	His His Thr Pro Glu	Ser Ile Ser Pro Ala	Thr Ala Phe
16835	16840	16845	
Lys Asp	Leu Gly Ile Asp Ser	Leu Thr Ala Leu Glu	Leu Arg Asn
16850	16855	16860	
Thr Leu	Thr His Asn Thr Gly	Leu Asp Leu Pro Pro	Thr Leu Ile
16865	16870	16875	
Phe Asp	His Pro Thr Pro Thr	Ala Leu Thr Gln His	Leu His Thr
16880	16885	16890	

Arg Leu Thr Gln Ile Glu Ser Pro Asn Ser Glu Asp Ser Met Leu
16895 16900 16905

Asn Leu Lys Asn Leu Asp Arg Ile Glu Ser Tyr Ile Phe Arg Asn
16910 16915 16920

Ser Gly Glu Asp Arg Ala His Val Ile Ala Asn Arg Leu Arg Ser
16925 16930 16935

Ile Leu Ser Lys Trp Asp Gly Thr Arg Ser Pro Glu Leu Pro Ala
16940 16945 16950

Glu Leu His Leu Glu Ser Ala Thr Asp Asp Glu Leu Phe Ser Leu
16955 16960 16965

Ala Asn Met Phe Arg Thr Pro Thr Ser Glu Ile Ser Pro Thr Leu
16970 16975 16980

Glu Gly Gly Arg Gly Val Asn
16985 16990

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<211> 2410

<212> PRT

<213> Mycobacterium ulcerans

<220>

<223> Amino acid sequence of the protein encoded by mlsA2 gene.

<400> 8

Val Val Ser Thr Glu Glu Asn Leu Arg Val Tyr Leu Lys Gln Val Ile
1 5 10 15

Thr Asp Leu His Gln Met Gln Ala Arg Leu Arg Lys Ile Glu Lys Gln
20 25 30

Arg Ser Glu Arg Val Ala Val Val Gly Met Ala Cys Arg Phe Pro Gly
35 40 45

Gly Val Ala Ser Ala Asp Gln Leu Trp Asp Leu Val Ile Ala Gly Arg
50 55 60

Asp Val Val Gly Asn Phe Pro Ala Asp Arg Gly Trp Asp Val Glu Gly
65 70 75 80

Leu Phe Asp Pro Asp Pro Asp Ala Val Gly Lys Thr Tyr Thr Arg Tyr
85 90 95

Gly Ala Phe Leu Asp Asp Ala Ala Gly Phe Asp Ala Gly Phe Phe Gly
 100 105 110

Ile Ser Pro Arg Glu Ala Arg Ala Met Asp Pro Gln Gln Arg Leu Leu
 115 120 125

Leu Glu Val Cys Trp Glu Ala Leu Glu Thr Ala Gly Ile Pro Ala His
 130 135 140

Thr Leu Ala Gly Thr Ser Thr Gly Val Phe Val Gly Ala Trp Ala Gln
 145 150 155 160

Ser Tyr Gly Ala Thr Asn Ser Asp Gly Ala Glu Gly Tyr Ala Met Thr
 165 170 175

Gly Gly Ser Thr Ser Val Met Ser Gly Arg Ile Ala Tyr Thr Leu Gly
 180 185 190

Leu Glu Gly Pro Ala Ile Thr Val Asp Thr Ala Cys Ser Ser Ser Leu
 195 200 205

Val Ala Ile His Leu Ala Cys Gln Ser Leu Arg Asn Asn Glu Ser Gln
 210 215 220

Leu Ala Leu Ala Gly Gly Val Thr Val Met Ser Thr Pro Ala Val Phe
 225 230 235 240

Thr Glu Phe Ser Arg Gln Arg Gly Leu Ala Pro Asp Gly Arg Cys Lys
 245 250 255

Ala Phe Ala Ala Thr Ala Asp Gly Thr Gly Trp Gly Glu Gly Ala Ala
 260 265 270

Val Leu Val Leu Glu Arg Leu Ser Glu Ala Arg Arg Asn Asn His Pro
 275 280 285

Val Leu Ala Ile Val Ala Gly Ser Ala Ile Asn Gln Asp Gly Ala Ser
 290 295 300

Asn Gly Leu Thr Ala Pro His Gly Pro Ser Gln Gln Arg Val Ile Asn
 305 310 315 320

Gln Ala Leu Ala Asn Ala Gly Leu Thr His Asp Gln Val Asp Ala Val
 325 330 335

Glu Ala His Gly Thr Gly Thr Thr Leu Gly Asp Pro Ile Glu Ala Ser
 340 345 350
 Ala Leu His Ala Thr Tyr Gly His His His Thr Pro Asp Gln Pro Leu
 355 360 365
 Trp Leu Gly Ser Ile Lys Ser Asn Ile Gly His Thr Gln Ala Ala Ala
 370 375 380
 Gly Ala Ala Gly Val Val Lys Met Ile Gln Ala Ile Thr His Ala Thr
 385 390 395 400
 Leu Pro Ala Thr Leu His Val Asp Gln Pro Ser Pro His Ile Asp Trp
 405 410 415
 Ser Ser Gly Thr Val Arg Leu Leu Thr Glu Pro Ile Gln Trp Pro Asn
 420 425 430
 Thr Asp His Pro Arg Thr Ala Ala Val Ser Ser Phe Gly Ile Ser Gly
 435 440 445
 Thr Asn Ala His Leu Ile Leu Gln Gln Pro Pro Thr Pro Asp Thr Thr
 450 455 460
 Gln Thr Pro Asn Thr Thr Thr Gly Ser Asp Pro Ala Val Gly Ser Asp
 465 470 475 480
 Ser Ala Val Gly Ser Asp Pro Ala Val Gly Val Leu Val Trp Pro Leu
 485 490 495
 Ser Ala Arg Ser Ala Pro Gly Leu Ser Ala Gln Ala Ala Arg Leu Tyr
 500 505 510
 Gln His Leu Ser Ala His Pro Asp Leu Asp Pro Ile Asp Val Ala His
 515 520 525
 Ser Leu Ala Thr Thr Arg Ser His His Pro His Arg Ala Thr Ile Thr
 530 535 540
 Thr Ser Ile Glu His His Ser Glu Asn Asn His Asp Thr Thr Asp Ala
 545 550 555 560
 Leu Ala Ala Leu His Ala Leu Ala Asn Asn Gly Thr His Pro Leu Leu
 565 570 575

Ser Arg Gly Leu Leu Thr Pro Gln Gly Pro Gly Lys Thr Val Phe Val
 580 585 590

Phe Pro Gly Gln Gly Ser Gln Tyr Pro Gly Met Gly Ala Asp Leu Tyr
 595 600 605

Arg Gln Phe Pro Val Phe Ala His Ala Leu Asp Glu Val Ala Ala Ala
 610 615 620

Leu Asn Pro His Leu Asp Val Ala Leu Leu Glu Val Met Phe Ser Gln
 625 630 635 640

Gln Asp Thr Ala Met Ala Gln Leu Leu Asp Gln Thr Phe Tyr Ala Gln
 645 650 655

Pro Ala Leu Phe Ala Leu Gly Thr Ala Leu His Arg Leu Phe Thr His
 660 665 670

Ala Gly Ile His Pro Asp Tyr Leu Leu Gly His Ser Ile Gly Glu Leu
 675 680 685

Thr Ala Ala Tyr Ala Ala Gly Val Leu Ser Leu Gln Asp Ala Ala Thr
 690 695 700

Leu Val Thr Ser Arg Gly Arg Leu Met Gln Ser Cys Thr Pro Gly Gly
 705 710 715 720

Thr Met Leu Ala Leu Gln Ala Ser Glu Ala Glu Val Gln Pro Leu Leu
 725 730 735

Glu Gly Leu Asp His Ala Val Ser Ile Ala Ala Ile Asn Gly Ala Thr
 740 745 750

Ser Ile Val Leu Ser Gly Asp His Asp Ser Leu Glu Gln Ile Gly Glu
 755 760 765

His Phe Ile Thr Gln Asp Arg Arg Thr Thr Arg Leu Gln Val Ser His
 770 775 780

Ala Phe His Ser Pro His Met Asp Pro Ile Leu Glu Gln Phe Arg Gln
 785 790 795 800

Ile Ala Ala Gln Leu Thr Phe Ser Ala Pro Thr Leu Pro Ile Leu Ser
 805 810 815

Asn Leu Thr Gly Gln Ile Ala Arg His Asp Gln Leu Ala Ser Pro Asp
820 825 830

Tyr Trp Thr Gln Gln Leu Arg Asn Thr Val Arg Phe His Asp Thr Val
835 840 845

Ala Ala Leu Leu Gly Ala Gly Glu Gln Val Phe Leu Glu Leu Ser Pro
850 855 860

His Pro Val Leu Thr Gln Ala Ile Thr Asp Thr Val Glu Gln Ala Gly
865 870 875 880

Gly Gly Gly Ala Ala Val Pro Ala Leu Arg Lys Asp Arg Pro Asp Ala
885 890 895

Val Ala Phe Ala Ala Ala Leu Gly Gln Leu His Cys His Gly Ile Ser
900 905 910

Pro Ser Trp Asn Val Leu Tyr Cys Gln Ala Arg Pro Leu Thr Leu Pro
915 920 925

Thr Tyr Ala Phe Gln His Gln Arg Tyr Trp Leu Leu Pro Thr Ala Gly
930 935 940

Asp Phe Ser Gly Ala Asn Thr His Ala Met His Pro Leu Leu Asp Thr
945 950 955 960

Ala Thr Glu Leu Ala Glu Asn Arg Gly Trp Val Phe Thr Gly Arg Ile
965 970 975

Ser Pro Arg Thr Gln Pro Trp Leu Asn Glu His Ala Val Glu Ser Ala
980 985 990

Val Leu Phe Pro Gly Thr Gly Phe Val Glu Leu Ala Leu His Val Ala
995 1000 1005

Asp Arg Ala Gly Tyr Ser Ser Val Asn Glu Leu Ile Val His Thr
1010 1015 1020

Pro Leu Leu Leu Ala Gly His Asp Thr Ala Asp Leu Gln Ile Thr
1025 1030 1035

Val Thr Asp Thr Asp Asp Met Gly Arg Gln Ser Leu Asn Ile His
1040 1045 1050

Ser His Pro His Ile Gly His Asp Asn Thr Thr Thr Gly Asp Glu
1055 1060 1065

Gln Pro Glu Trp Val Leu His Ala Ser Ala Val Leu Thr Ala Gln
1070 1075 1080

Thr Thr Asp His Asn His Leu Pro Leu Thr Pro Val Pro Trp Pro
1085 1090 1095

Pro Pro Gly Thr Ala Ala Ile Glu Val Asp Asp Phe Tyr Asp Asp
1100 1105 1110

Leu Ala Ala Gln Gly Tyr Asn Tyr Gly Pro Thr Phe Gln Gly Val
1115 1120 1125

Gln Arg Ile Trp Arg Asp His Ala Thr Pro Asp Val Ile Tyr Ala
1130 1135 1140

Glu Val Glu Leu Pro Glu Asp Thr Asp Ile Asp Gly Tyr Gly Ile
1145 1150 1155

His Pro Ala Leu Phe Asp Ala Ala Leu His Pro Leu Leu Ala Leu
1160 1165 1170

Thr Gln Pro Pro Thr Asn Asp Thr Asp Asp Thr Asn Thr Ala Asp
1175 1180 1185

Thr Gly Asp Gln Val Arg Leu Pro Tyr Ala Phe Thr Gly Ile Ser
1190 1195 1200

Leu His Ala Thr His Ala Thr Arg Leu Arg Val Arg Leu Thr Arg
1205 1210 1215

Thr Gly Ala Asp Ala Ile Thr Val His Thr Ser Asp Thr Thr Gly
1220 1225 1230

Ala Pro Val Ala Ile Ile Asp Ser Leu Ile Thr Arg Pro Leu Thr
1235 1240 1245

Thr Ala Thr Gly Ser Ala Pro Ala Thr Thr Ala Ala Gly Leu Leu
1250 1255 1260

His Leu Ser Trp Pro Pro His Pro Asp Thr Thr Thr Asp Thr Asp
1265 1270 1275

Thr Asp Thr Asp Ala Leu Arg Tyr Gln Val Ile Ala Glu Pro Thr

1280	1285	1290
Gln Gln Leu Pro Arg Tyr Leu His Asp Leu His Thr Ser Thr Asp 1295 1300 1305		
Leu His Thr Ser Thr Thr Glu Ala Asp Val Val Val Trp Pro Val 1310 1315 1320		
Pro Val Pro Ser Asn Glu Glu Leu Gln Ala His Gln Ala Ser Asp 1325 1330 1335		
Thr Ala Val Ser Ser Arg Ile His Thr Leu Thr Arg Gln Thr Leu 1340 1345 1350		
Thr Val Val Gln Asp Trp Leu Thr His Pro Asp Thr Thr Gly Thr 1355 1360 1365		
Arg Leu Val Ile Val Thr Arg His Gly Val Ser Thr Ser Ala His 1370 1375 1380		
Asp Pro Val Pro Asp Leu Ala His Ala Ala Val Trp Gly Leu Ile 1385 1390 1395		
Arg Ser Ala Gln Asn Glu His Pro Gly Arg Phe Thr Leu Leu Asp 1400 1405 1410		
Thr Asp Asp Asn Thr Asn Ser Asp Thr Leu Thr Thr Ala Leu Thr 1415 1420 1425		
Leu Pro Thr Arg Glu Asn Gln Leu Ala Ile Arg Arg Asp Thr Ile 1430 1435 1440		
His Ile Pro Arg Leu Thr Arg Thr Ala Val Leu Thr Pro Pro Asp 1445 1450 1455		
Ser Gly Pro Trp Arg Leu Asp Thr Thr Gly Lys Gly Asp Leu Ala 1460 1465 1470		
Asn Leu Ala Leu Leu Pro Thr Ala His Thr Ala Leu Ala Ser Gly 1475 1480 1485		
Gln Ile Arg Ile Asp Val Arg Ala Ala Gly Leu Asn Phe His Asp 1490 1495 1500		
Val Val Val Ala Leu Gly Leu Ile Pro Asp Asp Gly Phe Gly Gly 1505 1510 1515		

Glu Ala Ala Gly Val Ile Ser Glu Ile Gly Pro Asp Val Tyr Gly
 1520 1525 1530

Phe Ala Val Gly Asp Ala Val Thr Gly Met Thr Val Ser Gly Ala
 1535 1540 1545

Phe Ala Pro Ser Thr Val Ala Asp His Arg Met Val Met Thr Ile
 1550 1555 1560

Pro Ala Arg Trp Ser Phe Pro Gln Ala Ala Ser Ile Pro Val Val
 1565 1570 1575

Phe Leu Thr Ala Tyr Ile Ala Leu Ala Glu Ile Ser Gly Leu Ser
 1580 1585 1590

Arg Gly Gln Arg Val Leu Ile His Ala Gly Thr Gly Gly Val Gly
 1595 1600 1605

Met Ala Ala Ile Gln Leu Ala His His Leu Gly Ala Glu Val Phe
 1610 1615 1620

Ala Thr Ala Ser Ala Ala Lys Trp Ser Thr Leu Glu Ala Leu Gly
 1625 1630 1635

Val Pro Arg Asp His Ile Ala Ser Ser Arg Thr Leu Asp Phe Ser
 1640 1645 1650

Asn Ala Phe Leu Asp Ala Thr Asn Gly Ala Gly Val Asp Val Val
 1655 1660 1665

Leu Asn Cys Leu Ser Gly Glu Phe Val Glu Ala Ser Leu Ala Leu
 1670 1675 1680

Leu Pro Arg Gly Gly His Phe Val Glu Ile Gly Lys Thr Asp Ile
 1685 1690 1695

Arg Asp Thr Glu Val Ile Ala Ala Thr His Pro Gly Val Ile Tyr
 1700 1705 1710

Arg Ala Leu Asp Leu Leu Ser Val Ser Pro Asp His Ile Gln Arg
 1715 1720 1725

Thr Leu Ala Gln Leu Ser Pro Leu Phe Ala Thr Asp Thr Leu Lys
 1730 1735 1740

Pro	Leu	Pro	Thr	Thr	Asn	Tyr	Ser	Ile	Tyr	Gln	Ala	Ile	Ser	Ala
	1745					1750						1755		
Leu	Arg	Asp	Met	Ser	Gln	Ala	Arg	His	Thr	Gly	Lys	Ile	Val	Leu
	1760					1765					1770			
Thr	Ala	Pro	Val	Val	Val	Asp	Pro	Glu	Gly	Thr	Val	Leu	Ile	Thr
	1775					1780					1785			
Gly	Gly	Thr	Gly	Thr	Leu	Gly	Ala	Leu	Phe	Ala	Glu	His	Leu	Val
	1790					1795					1800			
Ser	Ala	His	Gly	Val	Arg	His	Leu	Leu	Leu	Thr	Ser	Arg	Arg	Gly
	1805					1810					1815			
Pro	Gln	Ala	His	Gly	Ala	Thr	Asp	Leu	Gln	Gln	Arg	Leu	Thr	Asp
	1820					1825					1830			
Leu	Gly	Ala	His	Val	Thr	Ile	Thr	Ala	Cys	Asp	Ile	Ser	Asp	Pro
	1835					1840					1845			
Glu	Ala	Leu	Ala	Ala	Leu	Val	Asn	Ser	Val	Pro	Thr	Gln	His	Arg
	1850					1855					1860			
Leu	Thr	Ala	Val	Val	His	Thr	Ala	Ala	Val	Leu	Ala	Asp	Thr	Pro
	1865					1870					1875			
Val	Thr	Glu	Leu	Thr	Gly	Asp	Gln	Leu	Asp	Gln	Val	Leu	Ala	Pro
	1880					1885					1890			
Lys	Ile	Asp	Ala	Ala	Trp	Gln	Leu	His	Gln	Leu	Thr	Tyr	Glu	His
	1895					1900					1905			
Asn	Leu	Ser	Ala	Phe	Ile	Met	Phe	Ser	Ser	Met	Ala	Gly	Met	Ile
	1910					1915					1920			
Gly	Ser	Pro	Gly	Gln	Gly	Asn	Tyr	Ala	Ala	Ala	Asn	Thr	Ala	Leu
	1925					1930					1935			
Asp	Ala	Leu	Ala	Asp	Tyr	Arg	His	Arg	Leu	Gly	Leu	Pro	Ala	Thr
	1940					1945					1950			
Ser	Leu	Ala	Trp	Gly	Tyr	Trp	Gln	Thr	Arg	Thr	Gly	Val	Thr	Ala
	1955					1960					1965			

His Leu Thr Asp Val Asp	Leu Ala Arg Met Thr Arg	Leu Gly Leu
1970	1975	1980
Met Pro Ile Ala Thr Ser	His Gly Leu Ala Leu Phe	Asp Ala Ala
1985	1990	1995
Leu Ala Thr Gly Gln Pro	Val Ser Ile Pro Ala Pro	Ile Asn Thr
2000	2005	2010
His Thr Leu Ala Arg His	Ala Arg Asp Asn Thr Leu	Thr Pro Ile
2015	2020	2025
Leu Ser Ala Leu Ile Thr	Thr Pro Arg Arg Arg Ala	Ala Ser Ala
2030	2035	2040
Ala Thr Asp Leu Ala Ala	Arg Leu Asn Gly Leu Ser	Pro Gln Gln
2045	2050	2055
Gln Gln Gln Thr Leu Ala	Thr Leu Val Ala Ala Ala	Thr Ala Thr
2060	2065	2070
Val Leu Gly His His Thr	Pro Glu Ser Ile Ser Pro	Ala Thr Ala
2075	2080	2085
Phe Lys Asp Leu Gly Ile	Asp Ser Leu Thr Ala Leu	Glu Leu Arg
2090	2095	2100
Asn Thr Leu Thr His Asn	Thr Gly Leu Asp Leu Pro	Pro Thr Leu
2105	2110	2115
Ile Phe Asp His Pro Thr	Pro His Ala Leu Thr Gln	His Leu His
2120	2125	2130
Thr Arg Leu Thr Gln Ser	His Thr Pro Val Gly Pro	Ile Ala Ser
2135	2140	2145
Leu Leu Ser His Ala Ile	Asp Glu Gly Lys Phe Arg	Ala Gly Ala
2150	2155	2160
Asp Leu Leu Met Ala Ala	Ser Asn Leu Asn Gln Ser	Phe Ser Asn
2165	2170	2175
Met Ala Glu Leu Asn Gln	Leu Pro Ala Val Thr Asp	Ile Ala Asp
2180	2185	2190

Ala Ser	Pro Asp Gly Leu	Leu Thr Leu Ile Cys Ile	Ser Thr Ser
2195		2200	2205
Glu Asn	Glu Tyr Ala Arg	Leu Ala Ala Ala Asn Ile	His Ser Leu
2210		2215	2220
Thr Phe	Ala Glu Ile Ala Ala	Pro Gly Phe Tyr Asp	Ala Gln Leu
2225		2230	2235
Pro Asn	Ser Ile Glu Thr Ser	Ala Glu Ala Leu Ala	Thr Ala Ile
2240		2245	2250
Thr Gly	Ala Tyr Ala Asn Thr	Ser Ile Val Leu Val	Ala His Ser
2255		2260	2265
Ile Val	Cys Glu Leu Ala Gln	Ala Thr Met Thr Arg	Leu Gln Asp
2270		2275	2280
Ala Asp	Ile Asp Leu Val Gly	Leu Val Leu Leu Asp	Pro Leu Glu
2285		2290	2295
Gly Thr	Asn Ser Thr Glu Asp	Tyr Val Glu Thr Val	Leu Thr Arg
2300		2305	2310
Ile Glu	His Ile Asn Ala Pro	Arg Val Gly Val Asp	Gly Tyr Leu
2315		2320	2325
Ala Ala	Leu Gly Arg Tyr Leu	Gln Phe His Glu Asp	Arg Arg Ile
2330		2335	2340
Pro Ile	Pro Glu Thr Arg His	Met Thr Leu His Ser	Asp Thr Lys
2345		2350	2355
Ile Asp	Arg Ala Gln Thr Pro	Met Asn Leu Leu Gln	Asp Glu Ala
2360		2365	2370
Ala Leu	Thr Ala Leu Lys Ile	Gly Asn Trp Met Asn	Asp Thr Gly
2375		2380	2385
Ser Ile	Ala Val Thr Leu Arg	Asp Gly Pro Val Phe	Leu Gly Arg
2390		2395	2400
Ala Arg	Ser Val Asn Met Arg		
2405		2410	

<211> 14130

<212> PRT

<213> Mycobacterium ulcerans

<220>

<223> Amino acid sequence of the protein encoded by mlsB gene.

<400> 9

Val Ile Phe Gly Asp Ala His Gln Asn Cys Arg Gly Gly Arg Val Leu
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Gly Asp Ala Val Ala Val Val Gly Met Ser Cys Arg Val Pro Gly Ala
 20 25 30

Ser Asp Pro Asp Ala Leu Trp Ala Leu Leu Arg Asp Gly Ile Ser Val
 35 40 45

Val Asp Glu Ile Pro Ser Ala Arg Trp Asn Leu Asp Gly Leu Val Ala
 50 55 60

His Arg Leu Thr Asp Glu Gln Arg Ser Ala Leu Arg His Gly Ala Phe
 65 70 75 80

Leu Asp Asp Val Glu Gly Phe Asp Ala Ala Phe Phe Gly Ile Asn Pro
 85 90 95

Ser Glu Ala Gly Ser Met Asp Pro Gln Gln Arg Leu Met Leu Glu Leu
 100 105 110

Thr Trp Ala Ala Leu Glu Asp Ala Arg Ile Val Pro Glu His Leu Ser
 115 120 125

Gly Ser Ser Ser Gly Val Phe Thr Gly Ala Met Ser Asp Asp Tyr Thr
 130 135 140

Thr Ala Val Thr Tyr Arg Ala Ala Met Thr Ala His Thr Phe Ala Gly
 145 150 155 160

Thr His Arg Ser Leu Ile Ala Asn Arg Val Ser Tyr Thr Leu Gly Leu
 165 170 175

Arg Gly Pro Ser Leu Val Ile Asp Thr Gly Gln Ser Ser Ser Leu Val
 180 185 190

Ala Val His Val Ala Met Glu Ser Leu Arg Arg Glu Glu Thr Ser Leu
 195 200 205

Ala Ile Ala Gly Gly Ile His Leu Asn Leu Ser Leu Ala Ala Ala Leu
 210 215 220

Ser Ala Ala His Phe Gly Ala Leu Ser Pro Asp Gly Arg Cys Tyr Thr
 225 230 235 240

Phe Asp Ala Arg Ala Asn Gly Tyr Val Arg Gly Glu Gly Gly Gly Val
 245 250 255

Val Val Leu Lys Arg Leu Asn Asp Ala Leu Ala Asp Gly Asn His Ile
 260 265 270

Tyr Cys Val Ile Arg Gly Ser Ser Val Asn Asn Asp Gly Ala Thr Gln
 275 280 285

Asp Leu Thr Ala Pro Gly Val Asp Gly Gln Arg Gln Ala Leu Leu Gln
 290 295 300

Ala Tyr Glu Arg Ala Glu Ile Asp Pro Ser Glu Val Gln Tyr Val Glu
 305 310 315 320

Leu His Gly Thr Gly Thr Arg Leu Gly Asp Pro Thr Glu Ala His Ser
 325 330 335

Leu His Ser Val Phe Gly Thr Ser Thr Val Pro Arg Ser Pro Leu Leu
 340 345 350

Val Gly Ser Ile Lys Thr Asn Ile Gly His Leu Glu Gly Ala Ala Gly
 355 360 365

Ile Leu Gly Leu Ile Lys Thr Ala Leu Ala Val His His Arg Gln Leu
 370 375 380

Pro Pro Ser Leu Asn Tyr Thr Val Pro Asn Pro Lys Ile Pro Leu Glu
 385 390 395 400

Gln Leu Gly Leu Arg Val Gln Thr Thr Leu Ser Glu Trp Pro Asp Leu
 405 410 415

Asp Lys Pro Leu Thr Ala Gly Val Ser Ser Phe Ser Met Gly Gly Thr
 420 425 430

Asn Ala His Leu Ile Leu Gln Gln Pro Pro Thr Pro Asp Thr Thr Gln
 435 440 445

Thr Pro Asn Pro Thr Thr Gly Ser Asp Pro Ala Val Gly Ser Asp Pro
450 455 460

Ala Val Gly Val Leu Val Trp Pro Leu Ser Ala Arg Ser Ala Pro Gly
465 470 475 480

Leu Ser Ala Gln Ala Ala Arg Leu Tyr Gln His Leu Ser Ala His Pro
485 490 495

Asp Leu Asp Pro Ile Asp Val Ala His Ser Leu Ala Thr Thr Arg Ser
500 505 510

His His Pro His Arg Ala Thr Ile Thr Thr Ser Ile Glu His His Ser
515 520 525

Glu Asn Asn His Asp Thr Thr Asp Ala Leu Ala Ala Leu His Ala Leu
530 535 540

Ala Asn Asn Gly Thr His Pro Leu Leu Ser Arg Gly Leu Leu Thr Pro
545 550 555 560

Gln Gly Pro Gly Lys Thr Val Phe Val Phe Pro Gly Gln Gly Ser Gln
565 570 575

Tyr Pro Gly Met Gly Ala Asp Leu Tyr Arg Gln Phe Pro Val Phe Ala
580 585 590

His Ala Leu Asp Glu Val Ala Ala Ala Leu Asn Pro His Leu Asp Val
595 600 605

Ala Leu Leu Glu Val Met Phe Ser Gln Gln Asp Thr Ala Met Ala Gln
610 615 620

Leu Leu Asp Gln Thr Phe Tyr Ala Gln Pro Ala Leu Phe Ala Leu Gly
625 630 635 640

Thr Ala Leu His Arg Leu Phe Thr His Ala Gly Ile His Pro Asp Tyr
645 650 655

Leu Leu Gly His Ser Ile Gly Glu Leu Thr Ala Ala Tyr Ala Ala Gly
660 665 670

Val Leu Ser Leu Gln Asp Ala Ala Thr Leu Val Thr Ser Arg Gly Arg
675 680 685

Leu Met Gln Ser Cys Thr Pro Gly Gly Thr Met Leu Ala Leu Gln Ala
 690 695 700

Ser Glu Ala Glu Val Gln Pro Leu Leu Glu Gly Leu Asp His Ala Val
 705 710 715 720

Ser Ile Ala Ala Ile Asn Gly Ala Thr Ser Ile Val Leu Ser Gly Asp
 725 730 735

His Asp Ser Leu Glu Gln Ile Gly Glu His Phe Ile Thr Gln Asp Arg
 740 745 750

Arg Thr Thr Arg Leu Gln Val Ser His Ala Phe His Ser Pro His Met
 755 760 765

Asp Pro Ile Leu Glu Gln Phe Arg Gln Ile Ala Ala Gln Leu Thr Phe
 770 775 780

Ser Ala Pro Thr Leu Pro Ile Leu Ser Asn Leu Thr Gly Gln Ile Ala
 785 790 795 800

Arg His Asp Gln Leu Ala Ser Pro Asp Tyr Trp Thr Gln Gln Leu Arg
 805 810 815

Asn Thr Val Arg Phe His Asp Thr Val Ala Ala Leu Leu Gly Ala Gly
 820 825 830

Glu Gln Val Phe Leu Glu Leu Ser Pro His Pro Val Leu Thr Gln Ala
 835 840 845

Ile Thr Asp Thr Val Glu Gln Ala Gly Gly Gly Gly Ala Ala Val Pro
 850 855 860

Ala Leu Arg Lys Asp Arg Pro Asp Ala Val Ala Phe Ala Ala Ala Leu
 865 870 875 880

Gly Gln Leu His Cys His Gly Ile Ser Pro Ser Trp Asn Val Leu Tyr
 885 890 895

Cys Gln Ala Arg Pro Leu Thr Leu Pro Thr Tyr Ala Phe Gln His Gln
 900 905 910

Arg Tyr Trp Leu Leu Pro Thr Ala Gly Asp Phe Ser Gly Ala Asn Thr
 915 920 925

His Ala Met His Pro Leu Leu Asp Thr Ala Thr Glu Leu Ala Glu Asn

930	935	940
Arg Gly Trp Val Phe Thr Gly Arg Ile Ser Pro Arg Thr Gln Pro Trp		
945	950	955 960
Leu Asn Glu His Ala Val Glu Ser Ala Val Leu Phe Pro Asn Thr Gly		
	965	970 975
Phe Val Glu Leu Ala Leu His Val Ala Asp Arg Ala Gly Tyr Ser Ser		
	980	985 990
Val Asn Glu Leu Ile Val His Thr Pro Leu Leu Leu Ala Gly His Asp		
	995	1000 1005
Thr Ala Asp Leu Gln Ile Thr Val Thr Asp Thr Asp Asp Met Gly		
	1010	1015 1020
Arg Gln Ser Leu Asn Ile His Ser His Pro His Ile Gly His Asp		
	1025	1030 1035
Asn Thr Thr Thr Gly Asp Glu Gln Pro Glu Trp Val Leu His Ala		
	1040	1045 1050
Ser Ala Val Leu Thr Ala Gln Thr Thr Asp His Asn His Leu Pro		
	1055	1060 1065
Leu Thr Pro Val Pro Trp Pro Pro Pro Gly Thr Ala Ala Ile Glu		
	1070	1075 1080
Val Asp Asp Phe Tyr Asp Asp Leu Ala Ala Gln Gly Tyr Asn Tyr		
	1085	1090 1095
Gly Pro Thr Phe Gln Gly Val Gln Arg Ile Trp Arg Asp His Ala		
	1100	1105 1110
Thr Pro Asp Val Ile Tyr Ala Glu Val Glu Leu Pro Glu Asp Thr		
	1115	1120 1125
Asp Ile Asp Gly Tyr Gly Ile His Pro Ala Leu Phe Asp Ala Ala		
	1130	1135 1140
Leu His Pro Leu Leu Ala Leu Thr Gln Pro Pro Thr Asn Asp Thr		
	1145	1150 1155
Asp Asp Thr Asn Thr Ala Asp Thr Gly Asp Gln Val Arg Leu Pro		
	1160	1165 1170

Tyr Ala Phe Thr Gly Ile Ser Leu His Ala Thr His Ala Thr Arg
1175 1180 1185

Leu Arg Val Arg Leu Thr Arg Thr Gly Ala Asp Ala Ile Thr Val
1190 1195 1200

His Thr Ser Asp Thr Thr Gly Ala Pro Val Ala Ile Ile Asp Ser
1205 1210 1215

Leu Ile Thr Arg Pro Leu Thr Thr Ala Thr Gly Ser Ala Pro Ala
1220 1225 1230

Thr Thr Ala Ala Gly Leu Leu His Leu Ser Trp Pro Pro His Pro
1235 1240 1245

Asp Thr Thr Thr Asp Thr Asp Thr Asp Thr Asp Ala Leu Arg Tyr
1250 1255 1260

Gln Val Ile Ala Glu Pro Thr Gln Gln Leu Pro Arg Tyr Leu His
1265 1270 1275

Asp Leu His Thr Ser Thr Asp Leu His Thr Ser Thr Thr Glu Ala
1280 1285 1290

Asp Val Val Val Trp Pro Val Pro Val Pro Ser Asn Glu Glu Leu
1295 1300 1305

Gln Ala His Gln Ala Ser Asp Thr Ala Val Ser Ser Arg Ile His
1310 1315 1320

Thr Leu Thr Arg Gln Thr Leu Thr Val Val Gln Asp Trp Leu Thr
1325 1330 1335

His Pro Asp Thr Thr Gly Thr Arg Leu Val Ile Val Thr Arg His
1340 1345 1350

Gly Val Ser Thr Ser Ala His Asp Pro Val Pro Asp Leu Ala His
1355 1360 1365

Ala Ala Val Trp Gly Leu Ile Arg Ser Ala Gln Asn Glu His Pro
1370 1375 1380

Gly Arg Phe Thr Leu Leu Asp Thr Asp Asp Asn Thr Asn Ser Asp
1385 1390 1395

Thr	Leu	Thr	Thr	Ala	Leu	Thr	Leu	Pro	Thr	Arg	Glu	Asn	Gln	Leu
1400							1405				1410			
Ala	Ile	Arg	Arg	Asp	Thr	Ile	His	Ile	Pro	Arg	Leu	Thr	Arg	His
1415						1420					1425			
Ser	Ser	Asp	Gly	Ala	Leu	Thr	Ala	Pro	Val	Val	Val	Asp	Pro	Glu
1430						1435					1440			
Gly	Thr	Val	Leu	Ile	Thr	Gly	Gly	Thr	Gly	Thr	Leu	Gly	Ala	Leu
1445						1450					1455			
Phe	Ala	Glu	His	Leu	Val	Ser	Ala	His	Gly	Val	Arg	His	Leu	Leu
1460						1465					1470			
Leu	Thr	Ser	Arg	Arg	Gly	Pro	Gln	Ala	His	Gly	Ala	Thr	Asp	Leu
1475						1480					1485			
Gln	Gln	Arg	Leu	Thr	Asp	Leu	Gly	Ala	His	Val	Thr	Ile	Thr	Ala
1490						1495					1500			
Cys	Asp	Ile	Ser	Asp	Pro	Glu	Ala	Leu	Ala	Ala	Leu	Val	Asn	Ser
1505						1510					1515			
Val	Pro	Thr	Gln	His	Arg	Leu	Thr	Ala	Val	Val	His	Thr	Ala	Ala
1520						1525					1530			
Val	Leu	Ala	Asp	Thr	Pro	Val	Thr	Glu	Leu	Thr	Gly	Asp	Gln	Leu
1535						1540					1545			
Asp	Gln	Val	Leu	Ala	Pro	Lys	Ile	Asp	Ala	Ala	Trp	Gln	Leu	His
1550						1555					1560			
Gln	Leu	Thr	Tyr	Glu	His	Asn	Leu	Ser	Ala	Phe	Ile	Met	Phe	Ser
1565						1570					1575			
Ser	Met	Ala	Gly	Met	Ile	Gly	Ser	Pro	Gly	Gln	Gly	Asn	Tyr	Ala
1580						1585					1590			
Ala	Ala	Asn	Thr	Ala	Leu	Asp	Ala	Leu	Ala	Asp	Tyr	Arg	His	Arg
1595						1600					1605			
Leu	Gly	Leu	Pro	Ala	Thr	Ser	Leu	Ala	Trp	Gly	Tyr	Trp	Gln	Thr
1610						1615					1620			

His Thr Gly Leu Thr Ala His Leu Thr Asp Val Asp Leu Ala Arg
1625 1630 1635

Met Thr Arg Leu Gly Leu Met Pro Ile Ala Thr Ser His Gly Leu
1640 1645 1650

Ala Leu Phe Asp Ala Ala Leu Ala Thr Gly Gln Pro Val Ser Ile
1655 1660 1665

Pro Ala Pro Ile Asn Thr His Thr Leu Ala Arg His Ala Arg Asp
1670 1675 1680

Asn Thr Leu Ala Pro Ile Leu Ser Ala Leu Ile Thr Thr Pro Arg
1685 1690 1695

Arg Arg Ala Ala Ser Ala Ala Thr Asp Leu Ala Ala Arg Leu Asn
1700 1705 1710

Gly Leu Ser Pro Gln Gln Gln Gln Gln Thr Leu Ala Thr Leu Val
1715 1720 1725

Ala Ala Ala Thr Ala Thr Val Leu Gly His His Thr Pro Glu Ser
1730 1735 1740

Ile Ser Pro Ala Thr Ala Phe Lys Asp Leu Gly Ile Asp Ser Leu
1745 1750 1755

Thr Ala Leu Glu Leu Arg Asn Thr Leu Thr His Asn Thr Gly Leu
1760 1765 1770

Asn Leu Ser Ser Thr Leu Ile Phe Asp His Pro Thr Pro His Ala
1775 1780 1785

Val Ala Glu His Leu Leu Glu Gln Ile Pro Gly Ile Gly Ala Leu
1790 1795 1800

Val Pro Ala Pro Val Val Ile Ala Ala Gly Arg Thr Glu Glu Pro
1805 1810 1815

Val Ala Val Val Gly Met Ala Cys Arg Phe Pro Gly Gly Val Ala
1820 1825 1830

Ser Ala Asp Gln Leu Trp Asp Leu Val Ile Ala Gly Arg Asp Val
1835 1840 1845

Val Gly 1850	Asn Phe Pro Ala Asp 1855	Arg Gly Trp Asp 1860	Val Glu Gly Leu 1860
Phe Asp 1865	Pro Asp Pro Asp Ala 1870	Val Gly Lys Thr Tyr 1875	Thr Arg Tyr 1875
Gly Ala 1880	Phe Leu Asp Asp Ala 1885	Ala Gly Phe Asp Ala 1890	Gly Phe Phe 1890
Gly Ile 1895	Ser Pro Arg Glu Ala 1900	Arg Ala Met Asp Pro 1905	Gln Gln Arg 1905
Leu Leu 1910	Leu Glu Val Cys Trp 1915	Glu Ala Leu Glu Thr 1920	Ala Gly Ile 1920
Pro Ala 1925	His Thr Leu Ala Gly 1930	Thr Ser Thr Gly Val 1935	Phe Val Gly 1935
Ala Trp 1940	Ala Gln Ser Tyr Gly 1945	Ala Thr Asn Ser Asp 1950	Asp Ala Glu 1950
Gly Tyr 1955	Ala Met Thr Gly Gly 1960	Ala Thr Ser Val Met 1965	Ser Gly Arg 1965
Ile Ala 1970	Tyr Thr Leu Gly Leu 1975	Glu Gly Pro Ala Ile 1980	Thr Val Asp 1980
Thr Ala 1985	Cys Ser Ser Ser Leu 1990	Val Ala Ile His Leu 1995	Ala Cys Gln 1995
Ser Leu 2000	Arg Asn Asn Glu Ser 2005	Gln Leu Ala Leu Ala 2010	Gly Gly Val 2010
Thr Val 2015	Met Ser Thr Pro Ala 2020	Val Phe Thr Glu Phe 2025	Ser Arg Gln 2025
Arg Gly 2030	Leu Ala Pro Asp Gly 2035	Arg Cys Lys Ala Phe 2040	Ala Ala Thr 2040
Ala Asp 2045	Gly Thr Gly Trp Gly 2050	Glu Gly Ala Ala Val 2055	Leu Val Leu 2055
Glu Arg 2060	Leu Ser Glu Ala Arg 2065	Arg Asn Asn His Pro 2070	Val Leu Ala 2070

Ile Val	Ala Gly Ser Ala	Ile Asn Gln Asp Gly Ala	Ser Asn Gly
2075		2080	2085
Leu Thr	Ala Pro His Gly Pro	Ser Gln Gln Arg Val	Ile Asn Gln
2090		2095	2100
Ala Leu	Ala Asn Ala Gly Leu	Thr His Asp Gln Val	Asp Ala Val
2105		2110	2115
Glu Ala	His Gly Thr Gly Thr	Thr Leu Gly Asp Pro	Ile Glu Ala
2120		2125	2130
Ser Ala	Leu His Ala Thr Tyr	Gly His His His Thr	Pro Asp Gln
2135		2140	2145
Pro Leu	Trp Leu Gly Ser Ile	Lys Ser Asn Ile Gly	His Thr Gln
2150		2155	2160
Ala Ala	Ala Gly Ala Ala Gly	Val Val Lys Met Ile	Gln Ala Ile
2165		2170	2175
Thr His	Ala Thr Leu Pro Ala	Thr Leu His Val Asp	Gln Pro Ser
2180		2185	2190
Pro His	Ile Asp Trp Ser Ser	Gly Thr Val Arg Leu	Leu Thr Glu
2195		2200	2205
Pro Ile	Gln Trp Pro Asn Thr	Asp His Pro Arg Thr	Ala Ala Val
2210		2215	2220
Ser Ser	Phe Gly Ile Ser Gly	Thr Asn Ala His Leu	Ile Leu Gln
2225		2230	2235
Gln Pro	Pro Thr Pro Asn Pro	Thr Gln Thr Pro Glu	Asp Cys Ser
2240		2245	2250
Pro Ala	Gln Ser Pro Cys Ala	Thr Ile Thr Asp Ala	Gly Thr Gly
2255		2260	2265
Leu Ser	Phe Val Pro Trp Val	Ile Ser Ala Lys Ser	Ala Glu Ala
2270		2275	2280
Leu Ser	Ala Gln Ala Ser Arg	Leu Leu Thr Arg Leu	Asp Asp Asp
2285		2290	2295

Pro Val Val Asp Ala Ile Asp Leu Gly Trp Ser Leu Ile Ala Thr.
 2300 2305 2310

Arg Ser Met Phe Glu His Arg Ala Val Val Val Gly Ala Asp Arg
 2315 2320 2325

His Gln Leu Gln Arg Gly Leu Ala Glu Leu Ala Ser Gly Asn Leu
 2330 2335 2340

Gly Ala Asp Val Val Val Gly Arg Ala Arg Ala Ala Gly Glu Thr
 2345 2350 2355

Val Met Val Phe Pro Gly Gln Gly Ser Gln Arg Leu Gly Met Gly
 2360 2365 2370

Ala Gln Leu Tyr Glu Gln Phe Pro Val Phe Ala Ala Ala Phe Asp
 2375 2380 2385

Asp Val Val Asp Ala Leu Asp Gln Tyr Leu Arg Leu Pro Leu Arg
 2390 2395 2400

Gln Val Met Trp Gly Asp Asp Glu Gly Leu Leu Asn Ser Thr Glu
 2405 2410 2415

Phe Ala Gln Pro Ser Leu Phe Ala Val Glu Val Ala Leu Phe Ala
 2420 2425 2430

Leu Leu Arg Phe Trp Gly Val Val Pro Asp Tyr Val Ile Gly His
 2435 2440 2445

Ser Val Gly Glu Leu Ala Ala Ala Gln Val Ala Gly Val Leu Ser
 2450 2455 2460

Leu Gln Asp Ala Ala Lys Leu Val Ser Ala Arg Gly Arg Leu Met
 2465 2470 2475

Gln Ala Leu Pro Ala Gly Gly Ala Met Val Ala Val Ala Ala Ser
 2480 2485 2490

Gln His Glu Val Glu Pro Leu Leu Val Glu Gly Val Asp Ile Ala
 2495 2500 2505

Ala Leu Asn Ala Pro Gly Ser Val Val Ile Ser Gly Asp Gln Ala
 2510 2515 2520

Ala Val	Arg Leu Ile	Ala Asn	Arg Leu Ala Asp	Arg Gly Tyr Arg
2525		2530		2535
Ala His	Glu Leu Ala Val	Ser His Ala Phe His	Ser Ser Leu Met	
2540		2545	2550	
Glu Pro	Met Leu Glu Glu	Phe Ala Arg Leu Ala	Ser Glu Ile Val	
2555		2560	2565	
Val Glu	Gln Pro Gln Ile	Pro Leu Ile Ser Asn	Val Thr Gly Gln	
2570		2575	2580	
Leu Ala	Asn Ala Asp Tyr	Gly Ser Ala Gly Tyr	Trp Val Asp His	
2585		2590	2595	
Ile Arg	Arg Pro Val Arg	Phe Ala Asp Ser Val	Ala Ser Leu Glu	
2600		2605	2610	
Ala Met	Gly Ala Ser Cys	Phe Ile Glu Val Gly	Pro Ala Ser Gly	
2615		2620	2625	
Leu Gly	Ala Ala Ile Glu	Gln Ser Leu Lys Ser	Ala Glu Pro Thr	
2630		2635	2640	
Val Ser	Val Ser Ala Leu	Ser Thr Asp Lys Pro	Glu Ser Val Ala	
2645		2650	2655	
Val Leu	Arg Ala Ala Ala	Arg Leu Ser Thr Ser	Gly Ile Pro Val	
2660		2665	2670	
Asp Trp	Gln Ser Val Phe	Asp Gly Arg Ser Thr	Gln Thr Val Asn	
2675		2680	2685	
Leu Pro	Thr Tyr Ala Phe	Gln Arg Gln Arg Phe	Trp Leu Asp Ala	
2690		2695	2700	
Asn Arg	Ile Gly Gln Gly	Asp Pro Ala Ser Gln	Pro Gln Ala Gln	
2705		2710	2715	
Asn Val	Glu Ser Arg Phe	Trp Glu Ala Val Glu	Arg Glu Asp Val	
2720		2725	2730	
Asp Gly	Leu Ala Asp Ser	Ile Gly Val Thr Ala	Ser Ala Met Gln	
2735		2740	2745	
Thr Val	Leu Pro Ala Leu	Ser Ser Trp Arg Arg	Ala Glu Arg Thr	

2750		2755		2760
Gln Ser Glu Leu Asp Ser Trp Arg Tyr Gln Val Thr Trp Leu Ser				
2765		2770		2775
Ser Pro Ala Thr Pro Ser Ser Ile Thr Leu Ser Gly Ile Trp Leu				
2780		2785		2790
Leu Ile Val Pro Ser Glu Leu Ala Lys Thr Asp Pro Val Ile Gly				
2795		2800		2805
Cys Ala Ala Ala Leu Glu Ala His Gly Ala Leu Val Thr Ile Ile				
2810		2815		2820
Thr Ile Phe Glu Pro Asp Phe Asn Arg Ser Leu Met Gly Ala Ser				
2825		2830		2835
Leu Lys Asp Ile Gly Ser His Ile Ser Gly Val Ile Ser Phe Leu				
2840		2845		2850
Gly Ile His Gly Ser Glu Phe Ser Asp Ser Gly Ala Val Lys Thr				
2855		2860		2865
Leu Asn Leu Val Gln Ala Met Gly Asp Val His Leu Asp Val Pro				
2870		2875		2880
Leu Trp Cys Leu Thr Gln Gly Ala Val Ser Ile Ser Ala Asp Asp				
2885		2890		2895
Leu Ile Arg Cys Ser Ser Ala Ala Leu Val Trp Gly Leu Gly Arg				
2900		2905		2910
Val Val Ala Leu Glu His Pro Gly Ser Trp Gly Gly Leu Val Asp				
2915		2920		2925
Leu Pro Glu Ser Pro Asp Asp Ala Ala Trp Glu Arg Leu Cys Ala				
2930		2935		2940
Leu Leu Ala Gln Pro Thr Asp Glu Asp Gln Phe Ala Ile Arg Pro				
2945		2950		2955
Ser Gly Val Phe Leu Arg Arg Leu Ile His Ala Pro Ala Thr Thr				
2960		2965		2970
Thr Ser Lys Ser Ser Thr Ala Trp Ala Pro Arg Gly Thr Val Leu				
2975		2980		2985

Ile Thr Gly Gly Thr Gly Ala Leu Gly Ala His Val Ala Arg Trp
 2990 2995 3000

 Leu Ala His Lys Tyr Glu Ser Val Asp Leu Leu Leu Thr Ser Arg
 3005 3010 3015

 Arg Gly Met Ala Ala Asp Gly Ala Thr Glu Leu Val Asp Asp Leu
 3020 3025 3030

 Arg Thr Ala Gly Ala Ser Val Thr Val His Ala Cys Asp Val Thr
 3035 3040 3045

 Asp Arg Thr Ser Val Glu Ala Ala Ile Ala Gly Lys Ser Leu Asp
 3050 3055 3060

 Ala Val Phe His Leu Ala Gly Arg His Gln Pro Thr Leu Leu Thr
 3065 3070 3075

 Glu Leu Glu Asp Glu Ser Phe Ser Asp Glu Leu Ala Pro Lys Val
 3080 3085 3090

 His Gly Ala Gln Val Leu Ser Asp Ile Thr Ser Asn Leu Thr Leu
 3095 3100 3105

 Ser Ala Phe Val Met Phe Ser Ser Val Ala Gly Ile Trp Gly Gly
 3110 3115 3120

 Lys Ser Gln Gly Ala Tyr Ala Ala Ala Asn Ala Phe Leu Asp Ser
 3125 3130 3135

 Leu Ala Glu Lys Arg Arg Thr Leu Gly Leu Pro Ala Thr Ser Val
 3140 3145 3150

 Ala Trp Gly Leu Trp Ala Gly Gly Gly Met Gly Asp Arg Pro Ser
 3155 3160 3165

 Ala Ser Gly Leu Asn Leu Ile Gly Leu Lys Ser Met Ser Ala Asp
 3170 3175 3180

 Leu Ala Val Gln Ala Leu Ser Asp Ala Ile Asp Arg Pro Gln Ala
 3185 3190 3195

 Thr Leu Thr Val Ala Ser Val Asn Trp Asp Arg Phe Tyr Pro Thr
 3200 3205 3210

Phe Ala Leu Ala Arg Pro Arg Pro Phe Leu His Glu Ile Thr Glu
 3215 3220 3225
 Val Met Ala Tyr Arg Glu Ser Met Arg Ser Ser Ser Ala Ser Thr
 3230 3235 3240
 Ala Thr Leu Leu Thr Ser Lys Leu Ala Gly Leu Thr Ala Thr Glu
 3245 3250 3255
 Gln Arg Ala Val Thr Arg Lys Leu Val Leu Asp Gln Ala Ala Ser
 3260 3265 3270
 Val Leu Gly Tyr Ala Ser Thr Glu Ser Leu Asp Thr His Glu Ser
 3275 3280 3285
 Phe Lys Asp Leu Gly Phe Asp Ser Leu Thr Ala Leu Glu Leu Arg
 3290 3295 3300
 Asp His Leu Gln Thr Ala Thr Gly Leu Asn Leu Ser Ser Thr Leu
 3305 3310 3315
 Ile Phe Asp His Pro Thr Pro His Ala Val Ala Glu His Leu Leu
 3320 3325 3330
 Glu Gln Ile Pro Gly Ile Gly Ala Leu Val Pro Ala Pro Val Val
 3335 3340 3345
 Ile Ala Ala Gly Arg Thr Glu Glu Pro Val Ala Val Val Gly Met
 3350 3355 3360
 Ala Cys Arg Phe Pro Gly Gly Val Ala Ser Ala Asp Gln Leu Trp
 3365 3370 3375
 Asp Leu Val Ile Ala Gly Arg Asp Val Val Gly Asn Phe Pro Ala
 3380 3385 3390
 Asp Arg Gly Trp Asp Val Glu Gly Leu Phe Asp Pro Asp Pro Asp
 3395 3400 3405
 Ala Val Gly Lys Thr Tyr Thr Arg Tyr Gly Ala Phe Leu Asp Asp
 3410 3415 3420
 Ala Ala Gly Phe Asp Ala Gly Phe Phe Gly Ile Ser Pro Arg Glu
 3425 3430 3435

Ala Arg	Ala Met	Asp Pro	Gln	Gln Arg	Leu Leu	Leu	Glu Val	Cys	
3440			3445			3450			
Trp Glu	Ala Leu	Glu Thr	Ala	Gly Ile	Pro Ala	His	Thr Leu	Ala	
3455			3460			3465			
Gly Thr	Ser Thr	Gly Val	Phe	Val Gly	Ala Trp	Ala	Gln Ser	Tyr	
3470			3475			3480			
Gly Ala	Thr Asn	Ser Asp	Asp	Ala Glu	Gly Tyr	Ala	Met Thr	Gly	
3485			3490			3495			
Gly Ala	Thr Ser	Val Met	Ser	Gly Arg	Ile Ala	Tyr	Thr Leu	Gly	
3500			3505			3510			
Leu Glu	Gly Pro	Ala Ile	Thr	Val Asp	Thr Ala	Cys	Ser Ser	Ser	
3515			3520			3525			
Leu Val	Ala Ile	His Leu	Ala	Cys Gln	Ser Leu	Arg	Asn Asn	Glu	
3530			3535			3540			
Ser Gln	Leu Ala	Leu Ala	Gly	Gly Val	Thr Val	Met	Ser Thr	Pro	
3545			3550			3555			
Ala Val	Phe Thr	Glu Phe	Ser	Arg Gln	Arg Gly	Leu	Ala Pro	Asp	
3560			3565			3570			
Gly Arg	Cys Lys	Ala Phe	Ala	Ala Thr	Ala Asp	Gly	Thr Gly	Trp	
3575			3580			3585			
Gly Glu	Gly Ala	Ala Val	Leu	Val Leu	Glu Arg	Leu	Ser Glu	Ala	
3590			3595			3600			
Arg Arg	Asn Asn	His Pro	Val	Leu Ala	Ile Val	Ala	Gly Ser	Ala	
3605			3610			3615			
Ile Asn	Gln Asp	Gly Ala	Ser	Asn Gly	Leu Thr	Ala	Pro His	Gly	
3620			3625			3630			
Pro Ser	Gln Gln	Arg Val	Ile	Asn Gln	Ala Leu	Ala	Asn Ala	Gly	
3635			3640			3645			
Leu Thr	His Asp	Gln Val	Asp	Ala Val	Glu Ala	His	Gly Thr	Gly	
3650			3655			3660			

Thr	Thr	Leu	Gly	Asp	Pro	Ile	Glu	Ala	Ser	Ala	Leu	His	Ala	Thr
3665						3670					3675			
Tyr	Gly	His	His	His	Thr	Pro	Asp	Gln	Pro	Leu	Trp	Leu	Gly	Ser
3680						3685					3690			
Ile	Lys	Ser	Asn	Ile	Gly	His	Thr	Gln	Ala	Ala	Ala	Gly	Ala	Ala
3695						3700					3705			
Gly	Val	Val	Lys	Met	Ile	Gln	Ala	Ile	Thr	His	Ala	Thr	Leu	Pro
3710						3715					3720			
Ala	Thr	Leu	His	Val	Asp	Gln	Pro	Ser	Pro	His	Ile	Asp	Trp	Ser
3725						3730					3735			
Ser	Gly	Thr	Val	Arg	Leu	Leu	Thr	Glu	Pro	Ile	Gln	Trp	Pro	Asn
3740						3745					3750			
Thr	Asp	His	Pro	Arg	Thr	Ala	Ala	Val	Ser	Ser	Phe	Gly	Ile	Ser
3755						3760					3765			
Gly	Thr	Asn	Ala	His	Leu	Ile	Leu	Gln	Gln	Pro	Pro	Thr	Pro	Asn
3770						3775					3780			
Pro	Thr	Gln	Thr	Pro	Glu	Asp	Cys	Ser	Pro	Ala	Gln	Ser	Pro	Cys
3785						3790					3795			
Ala	Thr	Ile	Thr	Asp	Ala	Gly	Thr	Gly	Leu	Ser	Phe	Val	Pro	Trp
3800						3805					3810			
Val	Ile	Ser	Ala	Lys	Ser	Ala	Glu	Ala	Leu	Ser	Ala	Gln	Ala	Ser
3815						3820					3825			
Arg	Leu	Leu	Thr	Arg	Leu	Asp	Asp	Asp	Pro	Val	Val	Asp	Ala	Ile
3830						3835					3840			
Asp	Leu	Gly	Trp	Ser	Leu	Ile	Ala	Thr	Arg	Ser	Met	Phe	Glu	His
3845						3850					3855			
Arg	Ala	Val	Val	Val	Gly	Ala	Asp	Arg	His	Gln	Leu	Gln	Arg	Gly
3860						3865					3870			
Leu	Ala	Glu	Leu	Ala	Ser	Gly	Asn	Leu	Gly	Ala	Asp	Val	Val	Val
3875						3880					3885			

Gly Arg	Ala Arg Ala Ala	Gly	Glu Thr Val Met Val	Phe Pro Gly
3890		3895		3900
Gln Gly	Ser Gln Arg Leu	Gly	Met Gly Ala Gln Leu	Tyr Glu Gln
3905		3910		3915
Phe Pro	Val Phe Ala Ala	Ala	Phe Asp Asp Val Val	Asp Ala Leu
3920		3925		3930
Asp Gln	Tyr Leu Arg Leu	Pro	Leu Arg Gln Val Met	Trp Gly Asp
3935		3940		3945
Asp Glu	Gly Leu Leu Asn Ser	Thr	Glu Phe Ala Gln	Pro Ser Leu
3950		3955		3960
Phe Ala	Val Glu Val Ala	Leu	Phe Ala Leu Leu Arg	Phe Trp Gly
3965		3970		3975
Val Val	Pro Asp Tyr Val	Ile	Gly His Ser Val Gly	Glu Leu Ala
3980		3985		3990
Ala Ala	Gln Val Ala Gly	Val	Leu Ser Leu Gln Asp	Ala Ala Lys
3995		4000		4005
Leu Val	Ser Ala Arg Gly	Arg	Leu Met Gln Ala Leu	Pro Ala Gly
4010		4015		4020
Gly Ala	Met Val Ala Val	Ala	Ala Ser Gln His Glu	Val Glu Pro
4025		4030		4035
Leu Leu	Val Glu Gly Val	Asp	Ile Ala Ala Leu Asn	Ala Pro Gly
4040		4045		4050
Ser Val	Val Ile Ser Gly	Asp	Gln Ala Ala Val Arg	Leu Ile Ala
4055		4060		4065
Asn Arg	Leu Ala Asp Arg	Gly	Tyr Arg Ala His Glu	Leu Ala Val
4070		4075		4080
Ser His	Ala Phe His Ser	Ser	Leu Met Glu Pro Met	Leu Glu Glu
4085		4090		4095
Phe Ala	Arg Leu Ala Ser	Glu	Ile Val Val Glu Gln	Pro Gln Ile
4100		4105		4110

Pro Leu Ile Ser Asn Val Thr Gly Gln Leu Ala Asn Ala Asp Tyr
 4115 4120 4125

Gly Ser Ala Gly Tyr Trp Val Asp His Ile Arg Arg Pro Val Arg
 4130 4135 4140

Phe Ala Asp Ser Val Ala Ser Leu Glu Ala Met Gly Ala Ser Cys
 4145 4150 4155

Phe Ile Glu Val Gly Pro Ala Ser Gly Leu Gly Ala Ala Ile Glu
 4160 4165 4170

Gln Ser Leu Lys Ser Ala Glu Pro Thr Val Ser Val Ser Ala Leu
 4175 4180 4185

Ser Thr Asp Lys Pro Glu Ser Val Ala Val Leu Arg Ala Ala Ala
 4190 4195 4200

Arg Leu Ser Thr Ser Gly Ile Pro Val Asp Trp Gln Ser Val Phe
 4205 4210 4215

Asp Gly Arg Ser Thr Gln Thr Val Asn Leu Pro Thr Tyr Ala Phe
 4220 4225 4230

Gln Arg Gln Arg Phe Trp Leu Asp Ala Asn Arg Ile Gly Gln Gly
 4235 4240 4245

Asp Pro Ala Ser Gln Pro Gln Ala Gln Asn Val Glu Ser Arg Phe
 4250 4255 4260

Trp Glu Ala Val Glu Arg Glu Asp Val Asp Gly Leu Ala Asp Ser
 4265 4270 4275

Ile Gly Val Thr Ala Ser Ala Met Gln Thr Val Leu Pro Ala Leu
 4280 4285 4290

Ser Ser Trp Arg Arg Ala Glu Arg Thr Gln Ser Glu Leu Asp Ser
 4295 4300 4305

Trp Arg Tyr Gln Val Thr Trp Leu Ser Ser Pro Ala Thr Pro Ser
 4310 4315 4320

Ser Ile Thr Leu Ser Gly Ile Trp Leu Leu Ile Val Pro Ser Glu
 4325 4330 4335

Leu Ala Lys Thr Asp Pro Val Ile Gly Cys Ala Ala Ala Leu Glu

4340	4345	4350
Ala His Gly Ala Leu Val Thr Ile Ile Thr Ile Phe Glu Pro Asp		
4355	4360	4365
Phe Asn Arg Ser Leu Met Gly Ala Ser Leu Lys Asp Ile Gly Ser		
4370	4375	4380
His Ile Ser Gly Val Ile Ser Phe Leu Gly Ile His Gly Ser Glu		
4385	4390	4395
Phe Ser Asp Ser Gly Ala Val Lys Thr Leu Asn Leu Val Gln Ala		
4400	4405	4410
Met Gly Asp Val His Leu Asp Val Pro Leu Trp Cys Leu Thr Gln		
4415	4420	4425
Gly Ala Val Ser Ile Ser Ala Asp Asp Leu Ile Arg Cys Ser Ser		
4430	4435	4440
Ala Ala Leu Val Trp Gly Leu Gly Arg Val Val Ala Leu Glu His		
4445	4450	4455
Pro Gly Ser Trp Gly Gly Leu Val Asp Leu Pro Glu Ser Pro Asp		
4460	4465	4470
Asp Ala Ala Trp Glu Arg Leu Cys Ala Leu Leu Ala Gln Pro Thr		
4475	4480	4485
Asp Glu Asp Gln Phe Ala Ile Arg Pro Ser Gly Val Phe Leu Arg		
4490	4495	4500
Arg Leu Ile His Ala Pro Ala Thr Thr Thr Ser Lys Ser Ser Thr		
4505	4510	4515
Ala Trp Ala Pro Arg Gly Thr Val Leu Ile Thr Gly Gly Thr Gly		
4520	4525	4530
Ala Leu Gly Ala His Val Ala Arg Trp Leu Ala His Lys Tyr Glu		
4535	4540	4545
Ser Val Asp Leu Leu Leu Thr Ser Arg Arg Gly Met Ala Ala Asp		
4550	4555	4560
Gly Ala Thr Glu Leu Val Asp Asp Leu Arg Thr Ala Gly Ala Ser		
4565	4570	4575

Val Thr 4580	Val His Ala Cys Asp 4585	Val Thr Asp Arg Thr 4590	Ser Val Glu
Ala Ala 4595	Ile Ala Gly Lys Ser 4600	Leu Asp Ala Val Phe 4605	His Leu Ala
Gly Arg 4610	His Gln Pro Thr Leu 4615	Leu Thr Glu Leu Glu 4620	Asp Glu Ser
Phe Ser 4625	Asp Glu Leu Ala Pro 4630	Lys Val His Gly Ala 4635	Gln Val Leu
Ser Asp 4640	Ile Thr Ser Asn Leu 4645	Thr Leu Ser Ala Phe 4650	Val Met Phe
Ser Ser 4655	Val Ala Gly Ile Trp 4660	Gly Gly Lys Ser Gln 4665	Gly Ala Tyr
Ala Ala 4670	Ala Asn Ala Phe Leu 4675	Asp Ser Leu Ala Glu 4680	Lys Arg Arg
Thr Leu 4685	Gly Leu Pro Ala Thr 4690	Ser Val Ala Trp Gly 4695	Leu Trp Ala
Gly Gly 4700	Gly Met Gly Asp Arg 4705	Pro Ser Ala Ser Gly 4710	Leu Asn Leu
Ile Gly 4715	Leu Lys Ser Met Ser 4720	Ala Asp Leu Ala Val 4725	Gln Ala Leu
Ser Asp 4730	Ala Ile Asp Arg Pro 4735	Gln Ala Thr Leu Thr 4740	Val Ala Ser
Val Asn 4745	Trp Asp Arg Phe Tyr 4750	Pro Thr Phe Ala Leu 4755	Ala Arg Pro
Arg Pro 4760	Phe Leu His Glu Ile 4765	Thr Glu Val Met Ala 4770	Tyr Arg Glu
Ser Met 4775	Arg Ser Ser Ser Ala 4780	Ser Thr Ala Thr Leu 4785	Leu Thr Ser
Lys Leu 4790	Ala Gly Leu Thr Ala 4795	Thr Glu Gln Arg Ala 4800	Val Thr Arg

Lys Leu Val Leu Asp Gln Ala Ala Ser Val Leu Gly Tyr Ala Ser
4805 4810 4815

Thr Glu Ser Leu Asp Thr His Glu Ser Phe Lys Asp Leu Gly Phe
4820 4825 4830

Asp Ser Leu Thr Ala Leu Glu Leu Arg Asp His Leu Gln Thr Ala
4835 4840 4845

Thr Gly Leu Asn Leu Ser Ser Thr Leu Ile Phe Asp His Pro Thr
4850 4855 4860

Pro His Ala Val Ala Glu His Leu Leu Glu Gln Ile Pro Gly Ile
4865 4870 4875

Gly Ala Leu Val Pro Ala Pro Val Val Ile Ala Ala Gly Arg Thr
4880 4885 4890

Glu Glu Pro Val Ala Val Val Gly Met Ala Cys Arg Phe Pro Gly
4895 4900 4905

Gly Val Ala Ser Ala Asp Gln Leu Trp Asp Leu Val Ile Ala Gly
4910 4915 4920

Arg Asp Val Val Gly Asn Phe Pro Ala Asp Arg Gly Trp Asp Val
4925 4930 4935

Glu Gly Leu Phe Asp Pro Asp Pro Asp Ala Val Gly Lys Thr Tyr
4940 4945 4950

Thr Arg Tyr Gly Ala Phe Leu Asp Asp Ala Ala Gly Phe Asp Ala
4955 4960 4965

Gly Phe Phe Gly Ile Ser Pro Arg Glu Ala Arg Ala Met Asp Pro
4970 4975 4980

Gln Gln Arg Leu Leu Leu Glu Val Cys Trp Glu Ala Leu Glu Thr
4985 4990 4995

Ala Gly Ile Pro Ala His Thr Leu Ala Gly Thr Ser Thr Gly Val
5000 5005 5010

Phe Val Gly Ala Trp Ala Gln Ser Tyr Gly Ala Thr Asn Ser Asp
5015 5020 5025

Asp	Ala	Glu	Gly	Tyr	Ala	Met	Thr	Gly	Gly	Ala	Ile	Ser	Val	Met
5030						5035					5040			
Ser	Gly	Arg	Ile	Ala	Tyr	Thr	Leu	Gly	Leu	Glu	Gly	Pro	Ala	Ile
5045						5050					5055			
Thr	Val	Asp	Thr	Ala	Cys	Ser	Ser	Ser	Leu	Val	Ala	Ile	His	Leu
5060						5065					5070			
Ala	Cys	Gln	Ser	Leu	Arg	Asn	Asn	Glu	Ser	Gln	Leu	Ala	Leu	Thr
5075						5080					5085			
Gly	Gly	Val	Thr	Val	Met	Ser	Thr	Pro	Ala	Ile	Phe	Thr	Glu	Phe
5090						5095					5100			
Ser	Arg	Gln	Arg	Gly	Leu	Ala	Pro	Asp	Gly	Arg	Cys	Lys	Ala	Phe
5105						5110					5115			
Ala	Ala	Thr	Ala	Asp	Gly	Thr	Gly	Trp	Gly	Glu	Gly	Ala	Ala	Val
5120						5125					5130			
Leu	Val	Leu	Glu	Arg	Leu	Ser	Glu	Ala	Arg	Arg	Asn	Asn	His	Pro
5135						5140					5145			
Val	Leu	Ala	Ile	Val	Ala	Gly	Ser	Ala	Ile	Asn	Gln	Asp	Gly	Ala
5150						5155					5160			
Ser	Asn	Gly	Leu	Thr	Ala	Pro	His	Gly	Pro	Ser	Gln	Gln	Arg	Val
5165						5170					5175			
Ile	Asn	Gln	Ala	Leu	Ala	Asn	Ala	Gly	Leu	Thr	His	Asp	Gln	Val
5180						5185					5190			
Asp	Ala	Val	Glu	Ala	His	Gly	Thr	Gly	Thr	Thr	Leu	Gly	Asp	Pro
5195						5200					5205			
Ile	Glu	Ala	Ser	Ala	Leu	His	Ala	Thr	Tyr	Gly	His	His	His	Thr
5210						5215					5220			
Pro	Asp	Gln	Pro	Leu	Trp	Leu	Gly	Ser	Ile	Lys	Ser	Asn	Ile	Gly
5225						5230					5235			
His	Thr	Gln	Ala	Ala	Ala	Gly	Ala	Ala	Gly	Val	Val	Lys	Met	Ile
5240						5245					5250			
Gln	Ala	Ile	Thr	His	Ala	Thr	Leu	Pro	Ala	Thr	Leu	His	Val	Asp

5255		5260		5265	
Gln Pro Ser Pro His Ile Asp Trp Ser Ser Gly Thr Val Arg Leu					
5270		5275		5280	
Leu Thr Glu Pro Ile Gln Trp Pro Asn Thr Asp His Pro Arg Thr					
5285		5290		5295	
Ala Ala Val Ser Ser Phe Gly Ile Ser Gly Thr Asn Ala His Leu					
5300		5305		5310	
Ile Leu Gln Gln Pro Pro Thr Pro Asp Thr Thr Gln Thr Pro Asn					
5315		5320		5325	
Thr Thr Thr Gly Ser Asp Pro Ala Val Gly Ser Asp Pro Ala Val					
5330		5335		5340	
Gly Val Leu Val Trp Pro Leu Ser Ala Arg Ser Ala Pro Gly Leu					
5345		5350		5355	
Ser Ala Gln Ala Ala Arg Leu Tyr Gln His Leu Ser Ala His Pro					
5360		5365		5370	
Asp Leu Asp Pro Ile Asp Val Ala His Ser Leu Ala Thr Thr Arg					
5375		5380		5385	
Ser His His Pro His Arg Ala Thr Ile Thr Thr Ser Ile Glu His					
5390		5395		5400	
His Ser Glu Asn Asn His Asp Thr Thr Asp Ala Leu Ala Ala Leu					
5405		5410		5415	
His Ala Leu Ala Asn Asn Gly Thr His Pro Leu Leu Ser Arg Gly					
5420		5425		5430	
Leu Leu Thr Pro Gln Gly Pro Gly Lys Thr Val Phe Val Phe Pro					
5435		5440		5445	
Gly Gln Gly Ser Gln Tyr Pro Gly Met Gly Ala Asp Leu Tyr Arg					
5450		5455		5460	
Gln Phe Pro Val Phe Ala His Ala Leu Asp Ala Cys Asp Ala Ala					
5465		5470		5475	
Leu Gln Pro Phe Thr Gly Trp Ser Val Leu Ala Val Leu His Asp					

5480		5485		5490
Glu Pro	Glu Ala Pro Ser	Leu	Glu Arg Val Asp	Val Val Gln Pro
5495		5500		5505
Val Leu	Phe Ser Val Met	Val	Ser Leu Ala Ala	Leu Trp Arg Trp
5510		5515		5520
Ala Gly	Ile Thr Pro Asp	Ala	Val Ile Gly His	Ser Gln Gly Glu
5525		5530		5535
Ile Ala	Ala Ala His Val	Ala	Gly Ala Leu Thr	Leu Pro Glu Ala
5540		5545		5550
Ala Ala	Val Val Ala Leu	Arg	Ser Arg Val Leu	Thr Asp Leu Ala
5555		5560		5565
Gly Ala	Gly Ala Met Ala	Ser	Val Leu Ser Pro	Glu Glu Pro Leu
5570		5575		5580
Thr Gln	Leu Leu Ala Arg	Trp	Asp Gly Lys Ile	Thr Val Ala Ala
5585		5590		5595
Val Asn	Gly Pro Ala Ser	Ala	Val Val Ser Gly	Asp Thr Thr Ala
5600		5605		5610
Ile Thr	Glu Leu Leu Ile	Thr	Cys Glu His Glu	Asn Ile Asp Ala
5615		5620		5625
Arg Ala	Ile Pro Val Asp	Tyr	Pro Ser His Ser	Pro Tyr Met Glu
5630		5635		5640
His Ile	Arg His Gln Phe	Leu	Asp Glu Leu Pro	Glu Leu Thr Pro
5645		5650		5655
Arg Pro	Ser Thr Ile Ala	Met	Tyr Ser Thr Val	Asp Gly Glu Pro
5660		5665		5670
His Asp	Thr Ala Tyr Asp	Thr	Thr Thr Met Thr	Ala Asp Tyr Trp
5675		5680		5685
Tyr Arg	Asn Ile Arg Asn	Thr	Val Arg Phe His	Asp Thr Val Ala
5690		5695		5700
Ala Leu	Leu Gly Ala Gly	Glu	Gln Val Phe Leu	Glu Leu Ser Pro

5705		5710		5715
His Pro Val Leu Thr Gln Ala	Ile Thr Asp Thr Val Glu Gln Ala			
5720	5725	5730		
Gly Gly Gly Gly Ala Ala Val	Pro Ala Leu Arg Lys Asp Arg Pro			
5735	5740	5745		
Asp Ala Val Ala Phe Ala Ala	Ala Leu Gly Gln Leu His Cys His			
5750	5755	5760		
Gly Ile Ser Pro Ser Trp Asn	Val Leu Tyr Cys Gln Ala Arg Pro			
5765	5770	5775		
Leu Thr Leu Pro Thr Tyr Ala	Phe Gln His Gln Arg Tyr Trp Leu			
5780	5785	5790		
Leu Pro Thr Ala Gly Asp Phe	Ser Gly Ala Asn Thr His Ala Met			
5795	5800	5805		
His Pro Leu Leu Asp Thr Ala	Thr Glu Leu Ala Glu Asn Arg Gly			
5810	5815	5820		
Trp Val Phe Thr Gly Arg Ile	Ser Pro Arg Thr Gln Pro Trp Leu			
5825	5830	5835		
Asn Glu His Ala Val Glu Ser	Ala Val Leu Phe Pro Gly Thr Gly			
5840	5845	5850		
Phe Val Glu Leu Ala Leu His	Val Ala Asp Arg Ala Gly Tyr Ser			
5855	5860	5865		
Ser Val Asn Glu Leu Ile Val	His Thr Pro Leu Leu Leu Ala Gly			
5870	5875	5880		
His Asp Thr Ala Asp Leu Gln	Ile Thr Val Thr Asp Thr Asp Asp			
5885	5890	5895		
Met Gly Arg Gln Ser Leu Asn	Ile His Ser Arg Pro His Ile Gly			
5900	5905	5910		
His Asp Asn Thr Thr Thr Gly	Asp Glu Gln Pro Glu Trp Val Leu			
5915	5920	5925		
His Ala Ser Ala Val Leu Thr	Ala Gln Thr Thr Asp His Asn His			

5930		5935		5940
Leu Pro Leu Thr Pro Val Pro Trp Pro Pro Pro Gly Thr Ala Ala				
5945		5950		5955
Ile Glu Val Asp Asp Phe Tyr Asp Asp Leu Ala Ala Gln Gly Tyr				
5960		5965		5970
Asn Tyr Gly Pro Thr Phe Gln Gly Val Gln Arg Ile Trp Arg Asp				
5975		5980		5985
His Ala Thr Pro Asp Val Ile Tyr Ala Glu Val Glu Leu Pro Glu				
5990		5995		6000
Asp Thr Asp Ile Asp Gly Tyr Gly Ile His Pro Ala Leu Phe Asp				
6005		6010		6015
Ala Ala Leu His Pro Leu Leu Ala Leu Thr Gln Pro Pro Thr Asn				
6020		6025		6030
Asp Thr Asp Asp Thr Asn Thr Ala Asp Thr Gly Asp Gln Val Arg				
6035		6040		6045
Leu Pro Tyr Ala Phe Thr Gly Ile Ser Leu His Ala Thr His Ala				
6050		6055		6060
Thr Arg Leu Arg Val Arg Leu Thr Arg Thr Gly Ala Asp Ala Ile				
6065		6070		6075
Thr Val His Thr Ser Asp Thr Thr Gly Ala Pro Val Ala Ile Ile				
6080		6085		6090
Asp Ser Leu Ile Thr Arg Pro Leu Thr Thr Ala Thr Gly Ser Ala				
6095		6100		6105
Pro Ala Thr Thr Ala Ala Gly Leu Leu His Leu Ser Trp Pro Pro				
6110		6115		6120
His Pro Asp Thr Thr Thr Asp Thr Asp Thr Asp Thr Asp Ala Leu				
6125		6130		6135
Arg Tyr Gln Val Ile Ala Glu Pro Thr Gln Gln Leu Pro Arg Tyr				
6140		6145		6150
Leu His Asp Leu His Thr Ser Thr Asp Leu His Thr Ser Thr Thr				
6155		6160		6165

Glu Ala Asp Val Val Val Trp Pro Val Pro Val Pro Ser Asn Glu
 6170 6175 6180

Glu Leu Gln Ala His Gln Ala Ser Asp Thr Ala Val Ser Ser Arg
 6185 6190 6195

Ile His Thr Leu Thr Arg Gln Thr Leu Thr Val Val Gln Asp Trp
 6200 6205 6210

Leu Thr His Pro Asp Thr Thr Gly Thr Arg Leu Val Ile Val Thr
 6215 6220 6225

Arg His Gly Val Ser Thr Ser Ala His Asp Pro Val Pro Asp Leu
 6230 6235 6240

Ala His Ala Ala Val Trp Gly Leu Ile Arg Ser Ala Gln Asn Glu
 6245 6250 6255

His Pro Gly Arg Phe Thr Leu Leu Asp Thr Asp Asp Asn Thr Asn
 6260 6265 6270

Ser Asp Thr Leu Thr Thr Ala Leu Thr Leu Pro Thr Arg Glu Asn
 6275 6280 6285

Gln Leu Ala Ile Arg Arg Asp Thr Ile His Ile Pro Arg Leu Thr
 6290 6295 6300

Arg His Ser Ser Asp Gly Ala Leu Thr Ala Pro Val Val Val Asp
 6305 6310 6315

Pro Glu Gly Thr Val Leu Ile Thr Gly Gly Thr Gly Thr Leu Gly
 6320 6325 6330

Ala Leu Phe Ala Glu His Leu Val Ser Ala His Gly Val Arg His
 6335 6340 6345

Leu Leu Leu Thr Ser Arg Arg Gly Pro Gln Ala His Gly Ala Thr
 6350 6355 6360

Asp Leu Gln Gln Arg Leu Thr Asp Leu Gly Ala His Val Thr Ile
 6365 6370 6375

Thr Ala Cys Asp Ile Ser Asp Pro Glu Ala Leu Ala Ala Leu Val
 6380 6385 6390

Asn Ser	Val Pro Thr Gln His	Arg Leu Thr Ala Val	Val His Thr
6395	6400	6405	
Ala Ala	Val Leu Ala Asp Thr	Pro Val Thr Glu Leu	Thr Gly Asp
6410	6415	6420	
Gln Leu	Asp Gln Val Leu Ala	Pro Lys Ile Asp Ala	Ala Trp Gln
6425	6430	6435	
Leu His	Gln Leu Thr Tyr Glu	His Asn Leu Ser Ala	Phe Ile Met
6440	6445	6450	
Phe Ser	Ser Met Ala Gly Met	Ile Gly Ser Pro Gly	Gln Gly Asn
6455	6460	6465	
Tyr Ala	Ala Ala Asn Thr Ala	Leu Asp Ala Leu Ala	Asp Tyr Arg
6470	6475	6480	
His Arg	Leu Gly Leu Pro Ala	Thr Ser Leu Ala Trp	Gly Tyr Trp
6485	6490	6495	
Gln Thr	His Thr Gly Leu Thr	Ala His Leu Thr Asp	Val Asp Leu
6500	6505	6510	
Ala Arg	Met Thr Arg Leu Gly	Leu Met Pro Ile Ala	Thr Ser His
6515	6520	6525	
Gly Leu	Ala Leu Phe Asp Ala	Ala Leu Ala Thr Gly	Gln Pro Val
6530	6535	6540	
Ser Ile	Pro Ala Pro Ile Asn	Thr His Thr Leu Ala	Arg His Ala
6545	6550	6555	
Arg Asp	Asn Thr Leu Ala Pro	Ile Leu Ser Ala Leu	Ile Thr Thr
6560	6565	6570	
Pro Arg	Arg Arg Ala Ala Ser	Ala Ala Thr Asp Leu	Ala Ala Arg
6575	6580	6585	
Leu Asn	Gly Leu Ser Pro Gln	Gln Gln Gln Gln Thr	Leu Ala Thr
6590	6595	6600	
Leu Val	Ala Ala Ala Thr Ala	Thr Val Leu Gly His	His Thr Pro
6605	6610	6615	

Glu Ser	Ile Ser Pro Ala	Thr	Ala Phe Lys Asp	Leu	Gly Ile Asp
6620		6625		6630	
Ser Leu	Thr Ala Leu Glu	Leu	Arg Asn Thr Leu	Thr	His Asn Thr
6635		6640		6645	
Gly Leu	Asp Leu Pro Pro	Thr	Leu Ile Phe Asp	His	Pro Thr Pro
6650		6655		6660	
His Ala	Val Ala Glu His	Leu	Leu Glu Gln Ile	Pro	Gly Ile Gly
6665		6670		6675	
Ala Leu	Val Pro Ala Pro	Val	Val Ile Ala Ala	Gly	Arg Thr Glu
6680		6685		6690	
Glu Pro	Val Ala Val Val	Gly	Met Ala Cys Arg	Phe	Pro Gly Gly
6695		6700		6705	
Val Ala	Ser Ala Asp Gln	Leu	Trp Asp Leu Val	Ile	Ala Gly Arg
6710		6715		6720	
Asp Val	Val Gly Asn Phe	Pro	Ala Asp Arg Gly	Trp	Asp Val Glu
6725		6730		6735	
Gly Leu	Phe Asp Pro Asp	Pro	Asp Ala Val Gly	Lys	Thr Tyr Thr
6740		6745		6750	
Arg Tyr	Gly Ala Phe Leu	Asp	Asp Ala Ala Gly	Phe	Asp Ala Gly
6755		6760		6765	
Phe Phe	Gly Ile Ser Pro	Arg	Glu Ala Arg Ala	Met	Asp Pro Gln
6770		6775		6780	
Gln Arg	Leu Leu Leu Glu	Val	Cys Trp Glu Ala	Leu	Glu Thr Ala
6785		6790		6795	
Gly Ile	Pro Ala His Thr	Leu	Ala Gly Thr Ser	Thr	Gly Val Phe
6800		6805		6810	
Ala Gly	Ala Trp Ala Gln	Ser	Tyr Gly Ala Thr	Asn	Ser Asp Asp
6815		6820		6825	
Ala Glu	Gly Tyr Ala Met	Thr	Gly Gly Ser Thr	Ser	Val Met Ser
6830		6835		6840	
Gly Arg	Ile Ala Tyr Thr	Leu	Gly Leu Glu Gly	Pro	Ala Ile Thr

6845		6850		6855	
Val Asp Thr Ala Cys Ser Ser Ser Leu Val Ala Ile His Leu Ala					
6860		6865		6870	
Cys Gln Ser Leu Arg Asn Asn Glu Ser Gln Leu Ala Leu Ala Gly					
6875		6880		6885	
Gly Val Thr Val Met Ser Thr Pro Ala Val Phe Thr Glu Phe Ser					
6890		6895		6900	
Arg Gln Arg Gly Leu Ala Pro Asp Gly Arg Cys Lys Ala Phe Ala					
6905		6910		6915	
Ala Thr Ala Asp Gly Thr Gly Phe Gly Glu Gly Ala Ala Val Leu					
6920		6925		6930	
Val Leu Glu Arg Leu Ser Glu Ala Arg Arg Asn Asn His Pro Val					
6935		6940		6945	
Leu Ala Ile Val Ala Gly Ser Ala Ile Asn Gln Asp Gly Ala Ser					
6950		6955		6960	
Asn Gly Leu Thr Ala Pro His Gly Pro Ser Gln Gln Arg Val Ile					
6965		6970		6975	
Asn Gln Ala Leu Ala Asn Ala Gly Leu Thr His Asp Gln Val Asp					
6980		6985		6990	
Ala Val Glu Ala His Gly Thr Gly Thr Thr Leu Gly Asp Pro Ile					
6995		7000		7005	
Glu Ala Ser Ala Leu His Ala Thr Tyr Gly His His His Thr Pro					
7010		7015		7020	
Asp Gln Pro Leu Trp Leu Gly Ser Ile Lys Ser Asn Ile Gly His					
7025		7030		7035	
Thr Gln Ala Ala Ala Gly Ala Ala Gly Val Val Lys Met Ile Gln					
7040		7045		7050	
Ala Ile Thr His Ala Thr Leu Pro Ala Thr Leu His Val Asp Gln					
7055		7060		7065	
Pro Ser Pro His Ile Asp Trp Ser Ser Gly Thr Val Arg Leu Leu					
7070		7075		7080	

Thr Glu	Pro	Ile	Gln	Trp	Pro	Asn	Thr	Asp	His	Pro	Arg	Thr	Ala
7085					7090					7095			
Ala Val	Ser	Ser	Phe	Gly	Ile	Ser	Gly	Thr	Asn	Ala	His	Leu	Ile
7100					7105					7110			
Leu Gln	Gln	Pro	Pro	Thr	Pro	Asp	Thr	Thr	Gln	Thr	Pro	Asn	Pro
7115					7120					7125			
Thr Thr	Gly	Ser	Asp	Pro	Ala	Val	Gly	Ser	Asp	Pro	Ala	Val	Gly
7130					7135					7140			
Val Leu	Val	Trp	Pro	Leu	Ser	Ala	Arg	Ser	Ala	Pro	Gly	Leu	Ser
7145					7150					7155			
Ala Gln	Ala	Ala	Arg	Leu	Tyr	Gln	His	Leu	Ser	Ala	His	Pro	Asp
7160					7165					7170			
Leu Asp	Pro	Ile	Asp	Val	Ala	His	Ser	Leu	Ala	Thr	Thr	Arg	Ser
7175					7180					7185			
His His	Pro	His	Arg	Ala	Thr	Ile	Thr	Thr	Ser	Ile	Glu	His	His
7190					7195					7200			
Ser Glu	Asn	Asn	His	Asp	Thr	Thr	Asp	Ala	Leu	Ala	Ala	Leu	His
7205					7210					7215			
Ala Leu	Ala	Asn	Asn	Gly	Thr	His	Pro	Leu	Leu	Ser	Arg	Gly	Leu
7220					7225					7230			
Leu Thr	Pro	Gln	Gly	Pro	Gly	Lys	Thr	Val	Phe	Val	Phe	Pro	Gly
7235					7240					7245			
Gln Gly	Ser	Gln	Tyr	Pro	Gly	Met	Gly	Ala	Asp	Leu	Tyr	Arg	Gln
7250					7255					7260			
Phe Pro	Val	Phe	Ala	His	Ala	Leu	Asp	Glu	Val	Ala	Ala	Ala	Leu
7265					7270					7275			
Asn Pro	His	Leu	Asp	Val	Ala	Leu	Leu	Glu	Val	Met	Phe	Ser	Gln
7280					7285					7290			
Gln Asp	Thr	Ala	Met	Ala	Gln	Leu	Leu	Asp	Gln	Thr	Phe	Tyr	Ala
7295					7300					7305			

Gln Pro Ala Leu Phe Ala Leu Gly Thr Ala Leu His Arg Leu Phe
 7310 7315 7320
 Thr His Ala Gly Ile His Pro Asp Tyr Leu Leu Gly His Ser Ile
 7325 7330 7335
 Gly Glu Leu Thr Ala Ala Tyr Ala Ala Gly Val Leu Ser Leu Gln
 7340 7345 7350
 Asp Ala Ala Thr Leu Val Thr Ser Arg Gly Arg Leu Met Gln Ser
 7355 7360 7365
 Cys Thr Pro Gly Gly Thr Met Leu Ala Leu Gln Ala Ser Glu Ala
 7370 7375 7380
 Glu Val Gln Pro Leu Leu Glu Gly Leu Asp His Ala Val Ser Ile
 7385 7390 7395
 Ala Ala Ile Asn Gly Ala Thr Ser Ile Val Leu Ser Gly Asp His
 7400 7405 7410
 Asp Ser Leu Glu Gln Ile Gly Glu His Phe Ile Thr Gln Asp Arg
 7415 7420 7425
 Arg Thr Thr Arg Leu Gln Val Ser His Ala Phe His Ser Pro His
 7430 7435 7440
 Met Asp Pro Ile Leu Glu Gln Phe Arg Gln Ile Ala Ala Gln Leu
 7445 7450 7455
 Thr Phe Ser Ala Pro Thr Leu Pro Ile Leu Ser Asn Leu Thr Gly
 7460 7465 7470
 Gln Ile Ala Arg His Asp Gln Leu Ala Ser Pro Asp Tyr Trp Thr
 7475 7480 7485
 Gln Gln Leu Arg Asn Thr Val Arg Phe His Asp Thr Val Ala Ala
 7490 7495 7500
 Leu Leu Gly Ala Gly Glu Gln Val Phe Leu Glu Leu Ser Pro His
 7505 7510 7515
 Pro Val Leu Thr Gln Ala Ile Thr Asp Thr Val Glu Gln Ala Gly
 7520 7525 7530

Gly Gly Gly Ala Ala Val Pro Ala Leu Arg Lys Asp Arg Pro Asp
 7535 7540 7545
 Ala Val Ala Phe Ala Ala Ala Leu Gly Gln Leu His Cys His Gly
 7550 7555 7560
 Ile Ser Pro Ser Trp Asn Val Leu Tyr Cys Gln Ala Arg Pro Leu
 7565 7570 7575
 Thr Leu Pro Thr Tyr Ala Phe Gln His Gln Arg Tyr Trp Leu Leu
 7580 7585 7590
 Pro Thr Ala Gly Asp Phe Ser Gly Ala Asn Thr His Ala Met His
 7595 7600 7605
 Pro Leu Leu Asp Thr Ala Thr Glu Leu Ala Glu Asn Arg Gly Trp
 7610 7615 7620
 Val Phe Thr Gly Arg Ile Ser Pro Arg Thr Gln Pro Trp Leu Asn
 7625 7630 7635
 Glu His Ala Val Glu Ser Ala Val Leu Phe Pro Gly Thr Gly Phe
 7640 7645 7650
 Val Glu Leu Ala Leu His Val Ala Asp Arg Ala Gly Tyr Ser Ser
 7655 7660 7665
 Val Asn Glu Leu Ile Val His Thr Pro Leu Leu Leu Ala Gly His
 7670 7675 7680
 Asp Thr Ala Asp Leu Gln Ile Thr Val Thr Asp Thr Asp Asp Met
 7685 7690 7695
 Gly Arg Gln Ser Leu Asn Ile His Ser Arg Pro His Ile Gly His
 7700 7705 7710
 Asp Asn Thr Thr Thr Gly Asp Glu Gln Pro Glu Trp Val Leu His
 7715 7720 7725
 Ala Ser Ala Val Leu Thr Ala Gln Thr Thr Asp His Asn His Leu
 7730 7735 7740
 Pro Leu Thr Pro Val Pro Trp Pro Pro Pro Gly Thr Ala Ala Ile
 7745 7750 7755

Glu Val Asp Asp Phe Tyr Asp Asp Leu Ala Ala Gln Gly Tyr Asn
 7760 7765 7770

Tyr Gly Pro Thr Phe Gln Gly Val Gln Arg Ile Trp Arg Asp His
 7775 7780 7785

Ala Thr Pro Asp Val Ile Tyr Ala Glu Val Glu Leu Pro Glu Asp
 7790 7795 7800

Thr Asp Ile Asp Gly Tyr Gly Ile His Pro Ala Leu Phe Asp Ala
 7805 7810 7815

Ala Leu His Pro Leu Leu Ala Leu Thr Gln Pro Pro Thr Asn Asp
 7820 7825 7830

Thr Asp Asp Thr Asn Thr Ala Asp Thr Gly Asp Gln Val Arg Leu
 7835 7840 7845

Pro Tyr Ala Phe Thr Gly Ile Ser Leu His Ala Thr His Ala Thr
 7850 7855 7860

Arg Leu Arg Val Arg Leu Thr Arg Thr Gly Ala Asp Ala Ile Thr
 7865 7870 7875

Val His Thr Ser Asp Thr Thr Gly Ala Pro Val Ala Ile Ile Asp
 7880 7885 7890

Ser Leu Ile Thr Arg Pro Leu Thr Thr Ala Thr Gly Ser Ala Pro
 7895 7900 7905

Ala Thr Thr Ala Ala Gly Leu Leu His Leu Ser Trp Pro Pro His
 7910 7915 7920

Pro Asp Thr Thr Thr Asp Thr Asp Thr Asp Thr Asp Ala Leu Arg
 7925 7930 7935

Tyr Gln Val Ile Ala Glu Pro Thr Gln Gln Leu Pro Arg Tyr Leu
 7940 7945 7950

His Asp Leu His Thr Ser Thr Asp Leu His Thr Ser Thr Thr Glu
 7955 7960 7965

Ala Asp Val Val Val Trp Pro Val Pro Val Pro Ser Asn Glu Glu
 7970 7975 7980

Ala Val	Leu Ala Asp Thr	Pro Val Thr Glu Leu Thr	Gly Asp Gln
8210		8215	8220
Leu Asp	Gln Val Leu Ala	Pro Lys Ile Asp Ala Ala	Trp Gln Leu
8225		8230	8235
His Gln	Leu Thr Tyr Glu	His Asn Leu Ser Ala Phe	Ile Met Phe
8240		8245	8250
Ser Ser	Met Ala Gly Met	Ile Gly Ser Pro Gly Gln	Gly Asn Tyr
8255		8260	8265
Ala Ala	Ala Asn Thr Ala	Leu Asp Ala Leu Ala Asp	Tyr Arg His
8270		8275	8280
Arg Leu	Gly Leu Pro Ala	Thr Ser Leu Ala Trp Gly	Tyr Trp Gln
8285		8290	8295
Thr His	Thr Gly Leu Thr	Ala His Leu Thr Asp Val	Asp Leu Ala
8300		8305	8310
Arg Met	Thr Arg Leu Gly	Leu Met Pro Ile Ala Thr	Ser His Gly
8315		8320	8325
Leu Ala	Leu Phe Asp Ala	Ala Leu Ala Thr Gly Gln	Pro Val Ser
8330		8335	8340
Ile Pro	Ala Pro Ile Asn	Thr His Thr Leu Ala Arg	His Ala Arg
8345		8350	8355
Asp Asn	Thr Leu Ala Pro	Ile Leu Ser Ala Leu Ile	Thr Thr Pro
8360		8365	8370
Arg Arg	Arg Ala Ala Ser	Ala Ala Thr Asp Leu Ala	Ala Arg Leu
8375		8380	8385
Asn Gly	Leu Ser Pro Gln	Gln Gln Gln Thr Leu	Ala Thr Leu
8390		8395	8400
Val Ala	Ala Ala Thr Ala	Thr Val Leu Gly His His	Thr Pro Glu
8405		8410	8415
Ser Ile	Ser Pro Ala Thr	Ala Phe Lys Asp Leu Gly	Ile Asp Ser
8420		8425	8430
Leu Thr	Ala Leu Glu Leu Arg	Asn Thr Leu Thr His	Asn Thr Gly

8435		8440		8445
Leu Asp 8450	Leu Pro Pro Thr	Leu 8455	Ile Phe Asp His 8460	Pro Thr Pro His
Ala Val 8465	Ala Glu His Leu	Leu 8470	Glu Gln Ile Pro 8475	Gly Ile Gly Ala
Leu Val 8480	Pro Ala Pro Val	Val 8485	Ile Ala Ala Gly 8490	Arg Thr Glu Glu
Pro Val 8495	Ala Val Val Gly	Met 8500	Ala Cys Arg Phe 8505	Pro Gly Gly Val
Ala Ser 8510	Ala Asp Gln Leu	Trp 8515	Asp Leu Val Ile 8520	Ala Gly Arg Asp
Val Val 8525	Gly Asn Phe Pro	Ala 8530	Asp Arg Gly Trp 8535	Asp Val Glu Gly
Leu Phe 8540	Asp Pro Asp Pro	Asp 8545	Ala Val Gly Lys 8550	Thr Tyr Thr Arg
Tyr Gly 8555	Ala Phe Leu Asp	Asp 8560	Ala Ala Gly Phe 8565	Asp Ala Gly Phe
Phe Gly 8570	Ile Ser Pro Arg	Glu 8575	Ala Arg Ala Met 8580	Asp Pro Gln Gln
Arg Leu 8585	Leu Leu Glu Val	Cys 8590	Trp Glu Ala Leu 8595	Glu Thr Ala Gly
Ile Pro 8600	Ala His Thr Leu	Ala 8605	Gly Thr Ser Thr 8610	Gly Val Phe Ala
Gly Ala 8615	Trp Ala Gln Ser	Tyr 8620	Gly Ala Thr Asn 8625	Ser Asp Asp Ala
Glu Gly 8630	Tyr Ala Met Thr	Gly 8635	Gly Ala Thr Ser 8640	Val Met Ser Gly
Arg Ile 8645	Ala Tyr Thr Leu	Gly 8650	Leu Glu Gly Pro 8655	Ala Ile Thr Val
Asp Thr 8660	Ala Cys Ser Ser	Ser 8665	Leu Val Ala Ile 8670	His Leu Ala Cys

Gln Ser	Leu Arg	Asn Asn	Glu	Ser Gln	Leu Ala	Leu	Ala Gly Gly
8675			8680			8685	
Val Thr	Val Met	Ser Thr	Pro	Ala Val	Phe Thr	Glu	Phe Ser Arg
8690			8695			8700	
Gln Arg	Gly Leu	Ala Pro	Asp	Gly Arg	Cys Lys	Ala	Phe Ala Ala
8705			8710			8715	
Thr Ala	Asp Gly	Thr Gly	Phe	Gly Glu	Gly Ala	Ala	Val Leu Val
8720			8725			8730	
Leu Glu	Arg Leu	Ser Glu	Ala	Arg Arg	Asn Asn	His	Pro Val Leu
8735			8740			8745	
Ala Ile	Val Ala	Gly Ser	Ala	Ile Asn	Gln Asp	Gly	Ala Ser Asn
8750			8755			8760	
Gly Leu	Thr Ala	Pro His	Gly	Pro Ser	Gln Gln	Arg	Val Ile Asn
8765			8770			8775	
Gln Ala	Leu Ala	Asn Ala	Gly	Leu Thr	His Asp	Gln	Val Asp Ala
8780			8785			8790	
Val Glu	Ala His	Gly Thr	Gly	Thr Thr	Leu Gly	Asp	Pro Ile Glu
8795			8800			8805	
Ala Ser	Ala Leu	His Ala	Thr	Tyr Gly	His His	His	Thr Pro Asp
8810			8815			8820	
Gln Pro	Leu Trp	Leu Gly	Ser	Ile Lys	Ser Asn	Ile	Gly His Thr
8825			8830			8835	
Gln Ala	Ala Ala	Gly Ala	Ala	Gly Val	Val Lys	Met	Ile Gln Ala
8840			8845			8850	
Ile Thr	His Ala	Thr Leu	Pro	Ala Thr	Leu His	Val	Asp Gln Pro
8855			8860			8865	
Ser Pro	His Ile	Asp Trp	Ser	Ser Gly	Thr Val	Arg	Leu Leu Thr
8870			8875			8880	
Glu Pro	Ile Gln	Trp Pro	Asn	Thr Asp	His Pro	Arg	Thr Ala Ala
8885			8890			8895	

Val Ser Ser Phe Gly Ile Ser Gly Thr Asn Ala His Leu Ile Leu
8900 8905 8910

Gln Gln Pro Pro Thr Pro Asp Thr Thr Gln Thr Pro Asn Thr Thr
8915 8920 8925

Thr Gly Ser Asp Pro Ala Val Gly Ser Asp Pro Ala Val Gly Val
8930 8935 8940

Leu Val Trp Pro Leu Ser Ala Arg Ser Ala Pro Gly Leu Ser Ala
8945 8950 8955

Gln Ala Ala Arg Leu Tyr Gln His Leu Ser Ala His Pro Asp Leu
8960 8965 8970

Asp Pro Ile Asp Val Ala His Ser Leu Ala Thr Thr Arg Ser His
8975 8980 8985

His Pro His Arg Ala Thr Ile Thr Thr Ser Ile Glu His His Ser
8990 8995 9000

Glu Asn Asn His Asp Thr Thr Asp Ala Leu Ala Ala Leu His Ala
9005 9010 9015

Leu Ala Asn Asn Gly Thr His Pro Leu Leu Ser Arg Gly Leu Leu
9020 9025 9030

Thr Pro Gln Gly Pro Gly Lys Thr Val Phe Val Phe Pro Gly Gln
9035 9040 9045

Gly Ser Gln Tyr Pro Gly Met Gly Ala Asp Leu Tyr Arg Gln Phe
9050 9055 9060

Pro Val Phe Ala His Ala Leu Asp Ala Cys Asp Ala Ala Leu Gln
9065 9070 9075

Pro Phe Thr Gly Trp Ser Val Leu Ala Val Leu His Asp Glu Pro
9080 9085 9090

Glu Ala Pro Ser Leu Glu Arg Val Asp Val Val Gln Pro Val Leu
9095 9100 9105

Phe Ser Val Met Val Ser Leu Ala Ala Leu Trp Arg Trp Ala Gly
9110 9115 9120

Ile Thr	Pro Asp	Ala Val	Ile Gly	His Ser	Gln Gly	Glu Ile	Ala
9125			9130		9135		
Ala Ala	His Val	Ala Gly	Ala Leu	Thr Leu	Pro Glu	Ala Ala	Ala
9140			9145		9150		
Val Val	Ala Leu	Arg Ser	Arg Val	Leu Thr	Asp Leu	Ala Gly	Ala
9155			9160		9165		
Gly Ala	Met Ala	Ser Val	Leu Ser	Pro Glu	Glu Pro	Leu Thr	Gln
9170			9175		9180		
Leu Leu	Ala Arg	Trp Asp	Gly Lys	Ile Thr	Val Ala	Ala Val	Asn
9185			9190		9195		
Gly Pro	Ala Ser	Ala Val	Val Ser	Gly Asp	Thr Thr	Ala Ile	Thr
9200			9205		9210		
Glu Leu	Leu Ile	Thr Cys	Glu His	Glu Asn	Ile Asp	Ala Arg	Ala
9215			9220		9225		
Ile Pro	Val Asp	Tyr Pro	Ser His	Ser Pro	Tyr Met	Glu His	Ile
9230			9235		9240		
Arg His	Gln Phe	Leu Asp	Glu Leu	Pro Glu	Leu Thr	Pro Arg	Pro
9245			9250		9255		
Ser Thr	Ile Ala	Met Tyr	Ser Thr	Val Asp	Gly Glu	Pro His	Asp
9260			9265		9270		
Thr Ala	Tyr Asp	Thr Thr	Thr Met	Thr Ala	Asp Tyr	Trp Tyr	Arg
9275			9280		9285		
Asn Ile	Arg Asn	Thr Val	Arg Phe	His Asp	Thr Val	Ala Ala	Leu
9290			9295		9300		
Leu Gly	Ala Gly	Glu Gln	Val Phe	Leu Glu	Leu Ser	Pro His	Pro
9305			9310		9315		
Val Leu	Thr Gln	Ala Ile	Thr Asp	Thr Val	Glu Gln	Ala Gly	Gly
9320			9325		9330		
Gly Gly	Ala Ala	Val Pro	Ala Leu	Arg Lys	Asp Arg	Pro Asp	Ala
9335			9340		9345		

Val Ala Phe Ala Ala Ala Leu Gly Gln Leu His Cys His Gly Ile
 9350 9355 9360
 Ser Pro Ser Trp Asn Val Leu Tyr Cys Gln Ala Arg Pro Leu Thr
 9365 9370 9375
 Leu Pro Thr Tyr Ala Phe Gln His Gln Arg Tyr Trp Leu Leu Pro
 9380 9385 9390
 Thr Ala Gly Asp Phe Ser Gly Ala Asn Thr His Ala Met His Pro
 9395 9400 9405
 Leu Leu Asp Thr Ala Thr Glu Leu Ala Glu Asn Arg Gly Trp Val
 9410 9415 9420
 Phe Thr Gly Arg Ile Ser Pro Arg Thr Gln Pro Trp Leu Asn Glu
 9425 9430 9435
 His Ala Val Glu Ser Ala Val Leu Phe Pro Gly Thr Gly Phe Val
 9440 9445 9450
 Glu Leu Ala Leu His Val Ala Asp Arg Ala Gly Tyr Ser Ser Val
 9455 9460 9465
 Asn Glu Leu Ile Val His Thr Pro Leu Leu Leu Ala Gly His Asp
 9470 9475 9480
 Thr Ala Asp Leu Gln Ile Thr Val Thr Asp Thr Asp Asp Met Gly
 9485 9490 9495
 Arg Gln Ser Leu Asn Ile His Ser His Pro His Ile Gly His Asp
 9500 9505 9510
 Asn Thr Thr Thr Gly Asp Glu Gln Pro Glu Trp Val Leu His Ala
 9515 9520 9525
 Ser Ala Val Leu Thr Ala Gln Thr Thr Asp His Asn His Leu Pro
 9530 9535 9540
 Leu Thr Pro Val Pro Trp Pro Pro Pro Gly Thr Ala Ala Ile Glu
 9545 9550 9555
 Val Asp Asp Phe Tyr Asp Asp Leu Ala Ala Gln Gly Tyr Asn Tyr
 9560 9565 9570

Gly Pro Thr Phe Gln Gly Val	Gln Arg Ile Trp Arg Asp His Ala
9575	9580 9585
Thr Pro Asp Val Ile Tyr Ala	Glu Val Glu Leu Pro Glu Asp Thr
9590	9595 9600
Asp Ile Asp Gly Tyr Gly Ile	His Pro Ala Leu Phe Asp Ala Ala
9605	9610 9615
Leu His Pro Leu Leu Ala Leu	Thr Gln Pro Pro Thr Asn Asp Thr
9620	9625 9630
Asp Asp Thr Asn Thr Ala Asp	Thr Gly Asp Gln Val Arg Leu Pro
9635	9640 9645
Tyr Ala Phe Thr Gly Ile Ser	Leu His Ala Thr His Ala Thr Arg
9650	9655 9660
Leu Arg Val Arg Leu Thr Arg	Thr Gly Ala Asp Ala Ile Thr Val
9665	9670 9675
His Thr Ser Asp Thr Thr Gly	Ala Pro Val Ala Ile Ile Asp Ser
9680	9685 9690
Leu Ile Thr Arg Pro Leu Thr	Thr Ala Thr Gly Ser Ala Pro Ala
9695	9700 9705
Thr Thr Ala Ala Gly Leu Leu	His Leu Ser Trp Pro Pro His Pro
9710	9715 9720
Asp Thr Thr Thr Asp Thr Asp	Thr Asp Thr Asp Ala Leu Arg Tyr
9725	9730 9735
Arg Val Ile Ala Glu Pro Thr	Gln Gln Leu Pro Arg Tyr Leu His
9740	9745 9750
Asp Leu His Thr Ser Thr Asp	Leu His Thr Ser Thr Thr Glu Ala
9755	9760 9765
Asp Val Val Val Trp Pro Val	Pro Val Pro Ser Asn Glu Glu Leu
9770	9775 9780
Gln Ala His Gln Ala Ser Asp	Thr Ala Val Ser Ser Arg Ile His
9785	9790 9795

Thr Leu Thr Arg Gln Thr Leu Thr Val Val Gln Asp Trp Leu Thr
 9800 9805 9810
 His Pro Asp Thr Thr Gly Thr Arg Leu Val Ile Val Thr Arg His
 9815 9820 9825
 Gly Val Ser Thr Ser Ala His Asp Pro Val Pro Asp Leu Ala His
 9830 9835 9840
 Ala Ala Val Trp Gly Leu Ile Arg Ser Ala Gln Asn Glu His Pro
 9845 9850 9855
 Gly Arg Phe Thr Leu Leu Asp Thr Asp Asp Asn Thr Asn Ser Asp
 9860 9865 9870
 Thr Leu Thr Thr Ala Leu Thr Leu Pro Thr Arg Glu Asn Gln Leu
 9875 9880 9885
 Ala Ile Arg Arg Asp Thr Ile His Ile Pro Arg Leu Thr Arg His
 9890 9895 9900
 Ser Ser Asp Gly Ala Leu Thr Ala Pro Val Val Val Asp Pro Glu
 9905 9910 9915
 Gly Thr Val Leu Ile Thr Gly Gly Thr Gly Thr Leu Gly Ala Leu
 9920 9925 9930
 Phe Ala Glu His Leu Val Ser Ala His Gly Val Arg His Leu Leu
 9935 9940 9945
 Leu Thr Ser Arg Arg Gly Pro Gln Ala His Gly Ala Thr Asp Leu
 9950 9955 9960
 Gln Gln Arg Leu Thr Asp Leu Gly Ala His Val Thr Ile Thr Ala
 9965 9970 9975
 Cys Asp Ile Ser Asp Pro Glu Ala Leu Ala Ala Leu Val Asn Ser
 9980 9985 9990
 Val Pro Thr Gln His Arg Leu Thr Ala Val Val His Thr Ala Ala
 9995 10000 10005
 Val Leu Ala Asp Thr Pro Val Thr Glu Leu Thr Gly Asp Gln Leu
 10010 10015 10020
 Asp Gln Val Leu Ala Pro Lys Ile Asp Ala Ala Trp Gln Leu His

10025		10030		10035
Gln Leu Thr Tyr Glu His Asn 10040		Leu Ser Ala Phe Ile 10045		Met Phe Ser 10050
Ser Met Ala Gly Met Ile Gly 10055		Ser Pro Gly Gln Gly 10060		Asn Tyr Ala 10065
Ala Ala Asn Thr Ala Leu Asp 10070		Ala Leu Ala Asp Tyr 10075		Arg His Arg 10080
Leu Gly Leu Pro Ala Thr Ser 10085		Leu Ala Trp Gly Tyr 10090		Trp Gln Thr 10095
His Thr Gly Leu Thr Ala His 10100		Leu Thr Asp Val Asp 10105		Leu Ala Arg 10110
Met Thr Arg Leu Gly Leu Met 10115		Pro Ile Ala Thr Ser 10120		His Gly Leu 10125
Ala Leu Phe Asp Ala Ala Leu 10130		Ala Thr Gly Gln Pro 10135		Val Ser Ile 10140
Pro Ala Pro Ile Asn Thr His 10145		Thr Leu Ala Arg His 10150		Ala Arg Asp 10155
Asn Thr Leu Ala Pro Ile Leu 10160		Ser Ala Leu Ile Thr 10165		Thr Pro Arg 10170
Arg Arg Ala Ala Ser Ala Ala 10175		Thr Asp Leu Ala Ala 10180		Arg Leu Asn 10185
Gly Leu Ser Pro Gln Gln Gln 10190		Gln Gln Thr Leu Ala 10195		Thr Leu Val 10200
Ala Ala Ala Thr Ala Thr Val 10205		Leu Gly His His Thr 10210		Pro Glu Ser 10215
Ile Ser Pro Ala Thr Ala Phe 10220		Lys Asp Leu Gly Ile 10225		Asp Ser Leu 10230
Thr Ala Leu Glu Leu Arg Asn 10235		Thr Leu Thr His Asn 10240		Thr Gly Leu 10245
Asp Leu Pro Pro Thr Leu Ile		Phe Asp His Pro Thr		Pro His Ala

10250		10255		10260
Val Ala	Glu His Leu Leu Glu	Gln Ile Pro Gly Ile	Gly Ala Leu	
10265		10270		10275
Val Pro	Ala Pro Val Val Ile	Ala Ala Gly Arg Thr	Glu Glu Pro	
10280		10285		10290
Val Ala	Val Val Gly Met Ala	Cys Arg Phe Pro Gly	Gly Val Ala	
10295		10300		10305
Ser Ala	Asp Gln Leu Trp Asp	Leu Val Ile Ala Gly	Arg Asp Val	
10310		10315		10320
Val Gly	Asn Phe Pro Ala Asp	Arg Gly Trp Asp Val	Glu Gly Leu	
10325		10330		10335
Phe Asp	Pro Asp Pro Asp Ala	Val Gly Lys Thr Tyr	Thr Arg Tyr	
10340		10345		10350
Gly Ala	Phe Leu Asp Asp Ala	Ala Gly Phe Asp Ala	Gly Phe Phe	
10355		10360		10365
Gly Ile	Ser Pro Arg Glu Ala	Arg Ala Met Asp Pro	Gln Gln Arg	
10370		10375		10380
Leu Leu	Leu Glu Val Cys Trp	Glu Ala Leu Glu Thr	Ala Gly Ile	
10385		10390		10395
Pro Ala	His Thr Leu Ala Gly	Thr Ser Thr Gly Val	Phe Ala Gly	
10400		10405		10410
Ala Trp	Ala Gln Ser Tyr Gly	Ala Thr Asn Ser Asp	Asp Ala Glu	
10415		10420		10425
Gly Tyr	Ala Met Thr Gly Gly	Ala Thr Ser Val Met	Ser Gly Arg	
10430		10435		10440
Ile Ala	Tyr Thr Leu Gly Leu	Glu Gly Pro Ala Ile	Thr Val Asp	
10445		10450		10455
Thr Ala	Cys Ser Ser Ser Leu	Val Ala Ile His Leu	Ala Cys Gln	
10460		10465		10470
Ser Leu	Arg Asn Asn Glu Ser	Gln Leu Ala Leu Ala	Gly Gly Val	
10475		10480		10485

Thr Val 10490	Met Ser Thr Pro Ala 10495	Val Phe Thr Glu Phe 10500	Ser Arg Gln
Arg Gly 10505	Leu Ala Pro Asp Gly 10510	Arg Cys Lys Ala Phe 10515	Ala Ala Thr
Ala Asp 10520	Gly Thr Gly Phe Gly 10525	Glu Gly Ala Ala Val 10530	Leu Val Leu
Glu Arg 10535	Leu Ser Glu Ala Arg 10540	Arg Asn Asn His Pro 10545	Val Leu Ala
Ile Val 10550	Ala Gly Ser Ala Ile 10555	Asn Gln Asp Gly Ala 10560	Ser Asn Gly
Leu Thr 10565	Ala Pro His Gly Pro 10570	Ser Gln Gln Arg Val 10575	Ile Asn Gln
Ala Leu 10580	Ala Asn Ala Gly Leu 10585	Thr His Asp Gln Val 10590	Asp Ala Val
Glu Ala 10595	His Gly Thr Gly Thr 10600	Thr Leu Gly Asp Pro 10605	Ile Glu Ala
Ser Ala 10610	Leu His Ala Thr Tyr 10615	Gly His His His Thr 10620	Pro Asp Gln
Pro Leu 10625	Trp Leu Gly Ser Ile 10630	Lys Ser Asn Ile Gly 10635	His Thr Gln
Ala Ala 10640	Ala Gly Ala Ala Gly 10645	Val Val Lys Met Ile 10650	Gln Ala Ile
Thr His 10655	Ala Thr Leu Pro Ala 10660	Thr Leu His Val Asp 10665	Gln Pro Ser
Pro His 10670	Ile Asp Trp Ser Ser 10675	Gly Thr Val Arg Leu 10680	Leu Thr Glu
Pro Ile 10685	Gln Trp Pro Asn Thr 10690	Asp His Pro Arg Thr 10695	Ala Ala Val
Ser Ser 10700	Phe Gly Ile Ser Gly 10705	Thr Asn Ala His Leu 10710	Ile Leu Gln

Gln Pro 10715	Pro Thr Pro Asp Thr 10720	Thr Gln Thr Pro Asn 10725	Thr Thr Thr
Gly Ser 10730	Asp Pro Ala Val Gly 10735	Ser Asp Pro Ala Val 10740	Gly Val Leu
Val Trp 10745	Pro Leu Ser Ala Arg 10750	Ser Ala Pro Gly Leu 10755	Ser Ala Gln
Ala Ala 10760	Arg Leu Tyr Gln His 10765	Leu Ser Ala His Pro 10770	Asp Leu Asp
Pro Ile 10775	Asp Val Ala His Ser 10780	Leu Ala Thr Thr Arg 10785	Ser His His
Pro His 10790	Arg Ala Thr Ile Thr 10795	Thr Ser Ile Glu His 10800	His Ser Glu
Asn Asn 10805	His Asp Thr Thr Asp 10810	Ala Leu Ala Ala Leu 10815	His Ala Leu
Ala Asn 10820	Asn Gly Thr His Pro 10825	Leu Leu Ser Arg Gly 10830	Leu Leu Thr
Pro Gln 10835	Gly Pro Gly Lys Thr 10840	Val Phe Val Phe Pro 10845	Gly Gln Gly
Ser Gln 10850	Tyr Pro Gly Met Gly 10855	Ala Asp Leu Tyr Arg 10860	Gln Phe Pro
Val Phe 10865	Ala His Ala Leu Asp 10870	Ala Cys Asp Ala Ala 10875	Leu Gln Pro
Phe Thr 10880	Gly Trp Ser Val Leu 10885	Ala Val Leu His Asp 10890	Glu Pro Glu
Ala Pro 10895	Ser Leu Glu Arg Val 10900	Asp Val Val Gln Pro 10905	Val Leu Phe
Ser Val 10910	Met Val Ser Leu Ala 10915	Ala Leu Trp Arg Trp 10920	Ala Gly Ile
Thr Pro 10925	Asp Ala Val Ile Gly 10930	His Ser Gln Gly Glu 10935	Ile Ala Ala

Ala His 10940	Val Ala Gly Ala Leu 10945	Thr Leu Pro Glu Ala 10950	Ala Ala Val
Val Ala 10955	Leu Arg Ser Arg Val 10960	Leu Thr Asp Leu Ala 10965	Gly Ala Gly
Ala Met 10970	Ala Ser Val Leu Ser 10975	Pro Glu Glu Pro Leu 10980	Thr Gln Leu
Leu Ala 10985	Arg Trp Asp Gly Lys 10990	Ile Thr Val Ala Ala 10995	Val Asn Gly
Pro Ala 11000	Ser Ala Val Val Ser 11005	Gly Asp Thr Thr Ala 11010	Ile Thr Glu
Leu Leu 11015	Ile Thr Cys Glu His 11020	Glu Asn Ile Asp Ala 11025	Arg Ala Ile
Pro Val 11030	Asp Tyr Pro Ser His 11035	Ser Pro Tyr Met Glu 11040	His Ile Arg
His Gln 11045	Phe Leu Asp Glu Leu 11050	Pro Glu Leu Thr Pro 11055	Arg Pro Ser
Thr Ile 11060	Ala Met Tyr Ser Thr 11065	Val Asp Gly Glu Pro 11070	His Asp Thr
Ala Tyr 11075	Asp Thr Thr Thr Met 11080	Thr Ala Asp Tyr Trp 11085	Tyr Arg Asn
Ile Arg 11090	Asn Thr Val Arg Phe 11095	His Asp Thr Val Ala 11100	Ala Leu Leu
Gly Ala 11105	Gly Glu Gln Val Phe 11110	Leu Glu Leu Ser Pro 11115	His Pro Val
Leu Thr 11120	Gln Ala Ile Thr Asp 11125	Thr Val Glu Gln Ala 11130	Gly Gly Gly
Gly Ala 11135	Ala Val Pro Ala Leu 11140	Arg Lys Asp Arg Pro 11145	Asp Ala Val
Ala Phe 11150	Ala Ala Ala Leu Gly 11155	Gln Leu His Cys His 11160	Gly Ile Ser

Pro Ser 11165	Trp Asn Val Leu Tyr 11170	Cys Gln Ala Arg Pro 11175	Leu Thr Leu
Pro Thr 11180	Tyr Ala Phe Gln His 11185	Gln Arg Tyr Trp Leu 11190	Leu Pro Thr
Ala Gly 11195	Asp Phe Ser Gly Ala 11200	Asn Thr His Ala Met 11205	His Pro Leu
Leu Asp 11210	Thr Ala Thr Glu Leu 11215	Ala Glu Asn Arg Gly 11220	Trp Val Phe
Thr Gly 11225	Arg Ile Ser Pro Arg 11230	Thr Gln Pro Trp Leu 11235	Asn Glu His
Ala Val 11240	Glu Ser Ala Val Leu 11245	Phe Pro Gly Thr Gly 11250	Phe Val Glu
Leu Ala 11255	Leu His Val Ala Asp 11260	Arg Ala Gly Tyr Ser 11265	Ser Val Asn
Glu Leu 11270	Ile Val His Thr Pro 11275	Leu Leu Leu Ala Gly 11280	His Asp Thr
Ala Asp 11285	Leu Gln Ile Thr Val 11290	Thr Asp Thr Asp Asp 11295	Met Gly Arg
Gln Ser 11300	Leu Asn Ile His Ser 11305	Arg Pro His Ile Gly 11310	His Asp Asn
Thr Thr 11315	Thr Gly Asp Glu Gln 11320	Pro Glu Trp Val Leu 11325	His Ala Ser
Ala Val 11330	Leu Thr Ala Gln Thr 11335	Thr Asp His Asn His 11340	Leu Pro Leu
Thr Pro 11345	Val Pro Trp Pro Pro 11350	Pro Gly Thr Ala Ala 11355	Ile Glu Val
Asp Asp 11360	Phe Tyr Asp Asp Leu 11365	Ala Ala Gln Gly Tyr 11370	Asn Tyr Gly
Pro Thr 11375	Phe Gln Gly Val Gln 11380	Arg Ile Trp Arg Asp 11385	His Ala Thr
Pro Asp	Val Ile Tyr Ala Glu	Val Glu Leu Pro Glu	Asp Thr Asp

11390	11395	11400
Ile Asp Gly Tyr Gly Ile His Pro Ala Leu Phe Asp Ala Ala Leu 11405 11410 11415		
His Pro Leu Leu Ala Leu Thr Gln Pro Pro Thr Asn Asp Thr Asp 11420 11425 11430		
Asp Thr Asn Thr Ala Asp Thr Gly Asp Gln Val Arg Leu Pro Tyr 11435 11440 11445		
Ala Phe Thr Gly Ile Ser Leu His Ala Thr His Ala Thr Arg Leu 11450 11455 11460		
Arg Val Arg Leu Thr Arg Thr Gly Ala Asp Ala Ile Thr Val His 11465 11470 11475		
Thr Ser Asp Thr Thr Gly Ala Pro Val Ala Ile Ile Asp Ser Leu 11480 11485 11490		
Ile Thr Arg Pro Leu Thr Thr Ala Thr Gly Ser Ala Pro Ala Thr 11495 11500 11505		
Thr Ala Ala Gly Leu Leu His Leu Ser Trp Pro Pro His Pro Asp 11510 11515 11520		
Thr Thr Thr Asp Thr Asp Thr Asp Thr Asp Ala Leu Arg Tyr Gln 11525 11530 11535		
Val Ile Ala Glu Pro Thr Gln Gln Leu Pro Arg Tyr Leu His Asp 11540 11545 11550		
Leu His Thr Ser Thr Asp Leu His Thr Ser Thr Thr Glu Ala Asp 11555 11560 11565		
Val Val Val Trp Pro Val Pro Val Pro Ser Asn Glu Glu Leu Gln 11570 11575 11580		
Ala His Gln Ala Ser Asp Thr Ala Val Ser Ser Arg Ile His Thr 11585 11590 11595		
Leu Thr Arg Gln Thr Leu Thr Val Val Gln Asp Trp Leu Thr His 11600 11605 11610		
Pro Asp Thr Thr Gly Thr Arg Leu Val Ile Val Thr Arg His Gly 11615 11620 11625		

Val Ser	Thr Ser	Ala His	Asp	Pro Val	Pro Asp	Leu	Ala His	Ala
11630			11635			11640		
Ala Val	Trp Gly	Leu Ile	Arg	Ser Ala	Gln Asn	Glu	His Pro	Gly
11645			11650			11655		
Arg Phe	Thr Leu	Leu Asp	Thr	Asp Asp	Asn Thr	Asn	Ser Asp	Thr
11660			11665			11670		
Leu Thr	Thr Ala	Leu Thr	Leu	Pro Thr	Arg Glu	Asn	Gln Leu	Ala
11675			11680			11685		
Ile Arg	Arg Asp	Thr Ile	His	Ile Pro	Arg Leu	Thr	Arg His	Ser
11690			11695			11700		
Ser Asp	Gly Ala	Leu Thr	Ala	Pro Val	Val Val	Asp	Pro Glu	Gly
11705			11710			11715		
Thr Val	Leu Ile	Thr Gly	Gly	Thr Gly	Thr Leu	Gly	Ala Leu	Phe
11720			11725			11730		
Ala Glu	His Leu	Val Ser	Ala	His Gly	Val Arg	His	Leu Leu	Leu
11735			11740			11745		
Thr Ser	Arg Arg	Gly Pro	Gln	Ala His	Gly Ala	Thr	Asp Leu	Gln
11750			11755			11760		
Gln Arg	Leu Thr	Asp Leu	Gly	Ala His	Val Thr	Ile	Thr Ala	Cys
11765			11770			11775		
Asp Ile	Ser Asp	Pro Glu	Ala	Leu Ala	Ala Leu	Val	Asn Ser	Val
11780			11785			11790		
Pro Thr	Gln His	Arg Leu	Thr	Ala Val	Val His	Thr	Ala Ala	Val
11795			11800			11805		
Leu Ala	Asp Thr	Pro Val	Thr	Glu Leu	Thr Gly	Asp	Gln Leu	Asp
11810			11815			11820		
Gln Val	Leu Ala	Pro Lys	Ile	Asp Ala	Ala Trp	Gln	Leu His	Gln
11825			11830			11835		
Leu Thr	Tyr Glu	His Asn	Leu	Ser Ala	Phe Ile	Met	Phe Ser	Ser
11840			11845			11850		

Met Ala	Gly Met Ile Gly Ser	Pro Gly Gln Gly Asn	Tyr Ala Ala
11855	11860	11865	
Ala Asn	Thr Ala Leu Asp Ala	Leu Ala Asp Tyr Arg	His Arg Leu
11870	11875	11880	
Gly Leu	Pro Ala Thr Ser Leu	Ala Trp Gly Tyr Trp	Gln Thr His
11885	11890	11895	
Thr Gly	Leu Thr Ala His Leu	Thr Asp Val Asp Leu	Ala Arg Met
11900	11905	11910	
Thr Arg	Leu Gly Leu Met Pro	Ile Ala Thr Ser His	Gly Leu Ala
11915	11920	11925	
Leu Phe	Asp Ala Ala Leu Ala	Thr Gly Gln Pro Val	Ser Ile Pro
11930	11935	11940	
Ala Pro	Ile Asn Thr His Thr	Leu Ala Arg His Ala	Arg Asp Asn
11945	11950	11955	
Thr Leu	Ala Pro Ile Leu Ser	Ala Leu Ile Thr Thr	Pro Arg Arg
11960	11965	11970	
Arg Ala	Ala Ser Ala Ala Thr	Asp Leu Ala Ala Arg	Leu Asn Gly
11975	11980	11985	
Leu Ser	Pro Gln Gln Gln Gln	Gln Thr Leu Ala Thr	Leu Val Ala
11990	11995	12000	
Ala Ala	Thr Ala Thr Val Leu	Gly His His Thr Pro	Glu Ser Ile
12005	12010	12015	
Ser Pro	Ala Thr Ala Phe Lys	Asp Leu Gly Ile Asp	Ser Leu Thr
12020	12025	12030	
Ala Leu	Glu Leu Arg Asn Thr	Leu Thr His Asn Thr	Gly Leu Asp
12035	12040	12045	
Leu Pro	Pro Thr Leu Ile Phe	Asp His Pro Thr Pro	His Ala Val
12050	12055	12060	
Ala Glu	His Leu Leu Glu Gln	Ile Pro Gly Ile Gly	Ala Leu Val
12065	12070	12075	

Pro Ala 12080	Pro Val Val Ile Ala 12085	Ala Gly Arg Thr Glu 12090	Glu Pro Val
Ala Val 12095	Val Gly Met Ala Cys 12100	Arg Phe Pro Gly Gly 12105	Val Ala Ser
Ala Asp 12110	Gln Leu Trp Asp Leu 12115	Val Ile Ala Gly Arg 12120	Asp Val Val
Gly Asn 12125	Phe Pro Ala Asp Arg 12130	Gly Trp Asp Val Glu 12135	Gly Leu Phe
Asp Pro 12140	Asp Pro Asp Ala Val 12145	Gly Lys Thr Tyr Thr 12150	Arg Tyr Gly
Ala Phe 12155	Leu Asp Asp Ala Ala 12160	Gly Phe Asp Ala Gly 12165	Phe Phe Gly
Ile Ser 12170	Pro Arg Glu Ala Arg 12175	Ala Met Asp Pro Gln 12180	Gln Arg Leu
Leu Leu 12185	Glu Val Cys Trp Glu 12190	Ala Leu Glu Thr Ala 12195	Gly Ile Pro
Ala His 12200	Thr Leu Ala Gly Thr 12205	Ser Thr Gly Val Phe 12210	Ala Gly Ala
Trp Ala 12215	Gln Ser Tyr Gly Ala 12220	Thr Asn Ser Asp Asp 12225	Ala Glu Gly
Tyr Ala 12230	Met Thr Gly Gly Ala 12235	Thr Ser Val Met Ser 12240	Gly Arg Ile
Ala Tyr 12245	Thr Leu Gly Leu Glu 12250	Gly Pro Ala Ile Thr 12255	Val Asp Thr
Ala Cys 12260	Ser Ser Ser Leu Val 12265	Ala Ile His Leu Ala 12270	Cys Gln Ser
Leu Arg 12275	Asn Asn Glu Ser Gln 12280	Leu Ala Leu Ala Gly 12285	Gly Val Thr
Val Met 12290	Ser Thr Pro Ala Val 12295	Phe Thr Glu Phe Ser 12300	Arg Gln Arg

Gly Leu	Ala Pro Asp	Gly Arg	Cys Lys Ala Phe	Ala	Ala Thr Ala
12305		12310		12315	
Asp Gly	Thr Gly Phe	Gly Glu	Gly Ala Ala Val	Leu	Val Leu Glu
12320		12325		12330	
Arg Leu	Ser Glu Ala Arg	Arg	Asn Asn His Pro	Val	Leu Ala Ile
12335		12340		12345	
Val Ala	Gly Ser Ala Ile	Asn	Gln Asp Gly Ala	Ser	Asn Gly Leu
12350		12355		12360	
Thr Ala	Pro His Gly Pro	Ser	Gln Gln Arg Val	Ile	Asn Gln Ala
12365		12370		12375	
Leu Ala	Asn Ala Gly Leu	Thr	His Asp Gln Val	Asp	Ala Val Glu
12380		12385		12390	
Ala His	Gly Thr Gly Thr	Thr	Leu Gly Asp Pro	Ile	Glu Ala Ser
12395		12400		12405	
Ala Leu	His Ala Thr Tyr	Gly	His His His Thr	Pro	Asp Gln Pro
12410		12415		12420	
Leu Trp	Leu Gly Ser Ile	Lys	Ser Asn Ile Gly	His	Thr Gln Ala
12425		12430		12435	
Ala Ala	Gly Ala Ala Gly	Val	Val Lys Met Ile	Gln	Ala Ile Thr
12440		12445		12450	
His Ala	Thr Leu Pro Ala	Thr	Leu His Val Asp	Gln	Pro Ser Pro
12455		12460		12465	
His Ile	Asp Trp Ser Ser	Gly	Thr Val Arg Leu	Leu	Thr Glu Pro
12470		12475		12480	
Ile Gln	Trp Pro Asn Thr	Asp	His Pro Arg Thr	Ala	Ala Val Ser
12485		12490		12495	
Ser Phe	Gly Ile Ser Gly	Thr	Asn Ala His Leu	Ile	Leu Gln Gln
12500		12505		12510	
Pro Pro	Thr Pro Asp Thr	Thr	Gln Thr Pro Asn	Thr	Thr Thr Gly
12515		12520		12525	
Ser Asp	Pro Ala Val Gly	Ser	Asp Pro Ala Val	Gly	Val Leu Val

12530	12535	12540
Trp Pro 12545	Leu Ser Ala Arg Ser 12550	Ala Pro Gly Leu Ser 12555
Ala Arg 12560	Leu Tyr Gln His Leu 12565	Ser Ala His Pro Asp 12570
Ile Asp 12575	Val Ala His Ser Leu 12580	Ala Thr Thr Arg Ser 12585
His Arg 12590	Ala Thr Ile Thr Thr 12595	Ser Ile Glu His His 12600
Asn His 12605	Asp Thr Thr Asp Ala 12610	Leu Ala Ala Leu His 12615
Asn Asn 12620	Gly Thr His Pro Leu 12625	Leu Ser Arg Gly Leu 12630
Gln Gly 12635	Pro Gly Lys Thr Val 12640	Phe Val Phe Pro Gly 12645
Gln Tyr 12650	Pro Gly Met Gly Ala 12655	Asp Leu Tyr Arg Gln 12660
Phe Ala 12665	His Ala Leu Asp Glu 12670	Val Ala Ala Ala Leu 12675
Leu Asp 12680	Val Ala Leu Leu Glu 12685	Val Met Phe Ser Gln 12690
Ala Met 12695	Ala Gln Leu Leu Asp 12700	Gln Thr Phe Tyr Ala 12705
Leu Phe 12710	Ala Leu Gly Thr Ala 12715	Leu His Arg Leu Phe 12720
Gly Ile 12725	His Pro Asp Tyr Leu 12730	Leu Gly His Ser Ile 12735
Thr Ala 12740	Ala Tyr Ala Ala Gly 12745	Val Leu Ser Leu Gln 12750
Thr Leu 12755	Val Thr Ser Arg Gly 12760	Arg Leu Met Gln Ser 12765
		Cys Thr Pro

Gly Gly	Thr Met. Leu Ala Leu	Gln Ala Ser Glu Ala	Glu Val Gln
12770	12775	12780	
Pro Leu	Leu Glu Gly Leu Asp	His Ala Val Ser Ile	Ala Ala Ile
12785	12790	12795	
Asn Gly	Ala Thr Ser Ile Val	Leu Ser Gly Asp His	Asp Ser Leu
12800	12805	12810	
Glu Gln	Ile Gly Glu His Phe	Ile Thr Gln Asp Arg	Arg Thr Thr
12815	12820	12825	
Arg Leu	Gln Val Ser His Ala	Phe His Ser Pro His	Met Asp Pro
12830	12835	12840	
Ile Leu	Glu Gln Phe Arg Gln	Ile Ala Ala Gln Leu	Thr Phe Ser
12845	12850	12855	
Ala Pro	Thr Leu Pro Ile Leu	Ser Asn Leu Thr Gly	Gln Ile Ala
12860	12865	12870	
Arg His	Asp Gln Leu Ala Ser	Pro Asp Tyr Trp Thr	Gln Gln Leu
12875	12880	12885	
Arg Asn	Thr Val Arg Phe His	Asp Thr Val Ala Ala	Leu Leu Gly
12890	12895	12900	
Ala Gly	Glu Gln Val Phe Leu	Glu Leu Ser Pro His	Pro Val Leu
12905	12910	12915	
Thr Gln	Ala Ile Thr Asp Thr	Val Glu Gln Ala Gly	Gly Gly Gly
12920	12925	12930	
Ala Ala	Val Pro Ala Leu Arg	Lys Asp Arg Pro Asp	Ala Val Ala
12935	12940	12945	
Phe Ala	Ala Ala Leu Gly Gln	Leu His Cys His Gly	Ile Ser Pro
12950	12955	12960	
Ser Trp	Asn Val Leu Tyr Cys	Gln Ala Arg Pro Leu	Thr Leu Pro
12965	12970	12975	
Thr Tyr	Ala Phe Gln His Gln	Arg Tyr Trp Leu Leu	Pro Thr Ala
12980	12985	12990	

Gly Asp Phe Ser Gly Ala Asn Thr His Ala Met His Pro Leu Leu
 12995 13000 13005
 Asp Thr Ala Thr Glu Leu Ala Glu Asn Arg Gly Trp Val Phe Thr
 13010 13015 13020
 Gly Arg Ile Ser Pro Arg Thr Gln Pro Trp Leu Asn Glu His Ala
 13025 13030 13035
 Val Glu Ser Ala Val Leu Phe Pro Gly Thr Gly Phe Val Glu Leu
 13040 13045 13050
 Ala Leu His Val Ala Asp Arg Ala Gly Tyr Ser Ser Val Asn Glu
 13055 13060 13065
 Leu Ile Val His Thr Pro Leu Leu Leu Ala Gly His Asp Thr Ala
 13070 13075 13080
 Asp Leu Gln Ile Thr Val Thr Asp Thr Asp Asp Met Gly Arg Gln
 13085 13090 13095
 Ser Leu Asn Ile His Ser Arg Pro His Ile Gly His Asp Asn Thr
 13100 13105 13110
 Thr Thr Gly Asp Glu Gln Pro Glu Trp Val Leu His Ala Ser Ala
 13115 13120 13125
 Val Leu Thr Ala Gln Thr Thr Asp His Asn His Leu Pro Leu Thr
 13130 13135 13140
 Pro Val Pro Trp Pro Pro Pro Gly Thr Ala Ala Ile Glu Val Asp
 13145 13150 13155
 Asp Phe Tyr Asp Asp Leu Ala Ala Gln Gly Tyr Asn Tyr Gly Pro
 13160 13165 13170
 Thr Phe Gln Gly Val Gln Arg Ile Trp Arg Asp His Ala Thr Pro
 13175 13180 13185
 Asp Val Ile Tyr Ala Glu Val Glu Leu Pro Glu Asp Thr Asp Ile
 13190 13195 13200
 Asp Gly Tyr Gly Ile His Pro Ala Leu Phe Asp Ala Ala Leu His
 13205 13210 13215

Pro Leu 13220	Leu Ala Leu Thr Gln 13225	Pro Pro Thr Asn Asp 13230	Thr Asp Asp
Thr Asn 13235	Thr Ala Asp Thr Gly 13240	Asp Gln Val Arg Leu 13245	Pro Tyr Ala
Phe Thr 13250	Gly Ile Ser Leu His 13255	Ala Thr His Ala Thr 13260	Arg Leu Arg
Val Arg 13265	Leu Thr Arg Thr Gly 13270	Ala Asp Ala Ile Thr 13275	Val His Thr
Ser Asp 13280	Thr Thr Gly Ala Pro 13285	Val Ala Ile Ile Asp 13290	Ser Leu Ile
Thr Arg 13295	Pro Leu Thr Thr Ala 13300	Thr Gly Ser Ala Pro 13305	Ala Thr Thr
Ala Ala 13310	Gly Leu Leu His Leu 13315	Ser Trp Pro Pro His 13320	Pro Asp Thr
Thr Thr 13325	Asp Thr Asp Thr Asp 13330	Thr Asp Ala Leu Arg 13335	Tyr Gln Val
Ile Ala 13340	Glu Pro Thr Gln Gln 13345	Leu Pro Arg Tyr Leu 13350	His Asp Leu
His Thr 13355	Ser Thr Asp Leu His 13360	Thr Ser Thr Thr Glu 13365	Ala Asp Val
Val Val 13370	Trp Pro Val Pro Val 13375	Pro Ser Asn Glu Glu 13380	Leu Gln Ala
His Gln 13385	Ala Ser Asp Thr Ala 13390	Val Ser Ser Arg Ile 13395	His Thr Leu
Thr Arg 13400	Gln Thr Leu Thr Val 13405	Val Gln Asp Trp Leu 13410	Thr His Pro
Asp Thr 13415	Thr Gly Thr Arg Leu 13420	Val Ile Val Thr Arg 13425	His Gly Val
Ser Thr 13430	Ser Ala His Asp Pro 13435	Val Pro Asp Leu Ala 13440	His Ala Ala

Val Trp	Gly Leu Ile Arg	Ser	Ala Gln Asn Glu His	Pro Gly Arg
13445		13450		13455
Phe Thr	Leu Leu Asp Thr	Asp	Asp Asn Thr Asn Ser	Asp Thr Leu
13460		13465		13470
Thr Thr	Ala Leu Thr Leu	Pro	Thr Arg Glu Asn Gln	Leu Ala Ile
13475		13480		13485
Arg Arg	Asp Thr Ile His	Ile	Pro Arg Leu Thr Arg	His Ser Ser
13490		13495		13500
Asp Gly	Ala Leu Thr Ala	Pro	Val Val Val Asp	Pro Glu Gly Thr
13505		13510		13515
Val Leu	Ile Thr Gly Gly	Thr	Gly Thr Leu Gly	Ala Leu Phe Ala
13520		13525		13530
Glu His	Leu Val Ser Ala	His	Gly Val Arg His	Leu Leu Thr
13535		13540		13545
Ser Arg	Arg Gly Pro Gln	Ala	His Gly Ala Thr	Asp Leu Gln Gln
13550		13555		13560
Arg Leu	Thr Asp Leu Gly	Ala	His Val Thr Ile	Thr Ala Cys Asp
13565		13570		13575
Ile Ser	Asp Pro Glu Ala	Leu	Ala Ala Leu Val	Asn Ser Val Pro
13580		13585		13590
Thr Gln	His Arg Leu Thr	Ala	Val Val His Thr	Ala Ala Val Leu
13595		13600		13605
Ala Asp	Thr Pro Val Thr	Glu	Leu Thr Gly Asp	Gln Leu Asp Gln
13610		13615		13620
Val Leu	Ala Pro Lys Ile	Asp	Ala Ala Trp Gln	Leu His Gln Leu
13625		13630		13635
Thr Tyr	Glu His Asn Leu	Ser	Ala Phe Ile Met	Phe Ser Ser Met
13640		13645		13650
Ala Gly	Met Ile Gly Ser	Pro	Gly Gln Gly Asn	Tyr Ala Ala Ala
13655		13660		13665
Asn Thr	Ala Leu Asp Ala	Leu	Ala Asp Tyr Arg	His Arg Leu Gly

13670	13675	13680
Leu Pro 13685	Ala Thr Ser Leu Ala 13690	Trp Gly Tyr Trp Gln Thr His Thr 13695
Gly Leu 13700	Thr Ala His Leu Thr 13705	Asp Val Asp Leu Ala Arg Met Thr 13710
Arg Leu 13715	Gly Leu Met Pro Ile 13720	Ala Thr Ser His Gly Leu Ala Leu 13725
Phe Asp 13730	Ala Ala Leu Ala Thr 13735	Gly Gln Pro Val Ser Ile Pro Ala 13740
Pro Ile 13745	Asn Thr His Thr Leu 13750	Ala Arg His Ala Arg Asp Asn Thr 13755
Leu Ala 13760	Pro Ile Leu Ser Ala 13765	Leu Ile Thr Thr Pro Arg Arg Arg 13770
Ala Ala 13775	Ser Ala Ala Thr Asp 13780	Leu Ala Ala Arg Leu Asn Gly Leu 13785
Ser Pro 13790	Gln Gln Gln Gln Gln 13795	Thr Leu Ala Thr Leu Val Ala Ala 13800
Ala Thr 13805	Ala Thr Val Leu Gly 13810	His His Thr Pro Glu Ser Ile Ser 13815
Pro Ala 13820	Thr Ala Phe Lys Asp 13825	Leu Gly Ile Asp Ser Leu Thr Ala 13830
Leu Glu 13835	Leu Arg Asn Thr Leu 13840	Thr His Asn Thr Gly Leu Asp Leu 13845
Pro Pro 13850	Thr Leu Ile Phe Asp 13855	His Pro Thr Pro His Ala Leu Thr 13860
Gln His 13865	Leu His Thr Arg Leu 13870	Thr Gln Ser His Thr Pro Val Gly 13875
Pro Ile 13880	Ala Ser Leu Leu Ser 13885	His Ala Ile Asp Glu Gly Lys Phe 13890
Arg Ala	Gly Ala Asp Leu Leu	Met Ala Ala Ser Asn Leu Asn Gln

13895	13900	13905
Ser Phe 13910	Ser Asn Met Ala Glu 13915	Leu Asn Gln Leu Pro Ala Val Thr 13920
Asp Ile 13925	Ala Asp Ala Ser Pro 13930	Asp Gly Leu Leu Thr Leu Ile Cys 13935
Ile Ser 13940	Thr Ser Glu Asn Glu 13945	Tyr Ala Arg Leu Ala Ala Ala Asn 13950
Ile His 13955	Ser Leu Thr Phe Ala 13960	Glu Ile Ala Ala Pro Gly Phe Tyr 13965
Asp Ala 13970	Gln Leu Pro Asn Ser 13975	Ile Glu Thr Ser Ala Glu Ala Leu 13980
Ala Thr 13985	Ala Ile Thr Gly Ala 13990	Tyr Ala Asn Thr Ser Ile Val Leu 13995
Val Ala 14000	His Ser Ile Val Cys 14005	Glu Leu Ala Gln Ala Thr Met Thr 14010
Arg Leu 14015	Gln Asp Ala Asp Ile 14020	Asp Leu Val Gly Leu Val Leu Leu 14025
Asp Pro 14030	Leu Glu Gly Thr Asn 14035	Ser Thr Glu Asp Tyr Val Glu Thr 14040
Val Leu 14045	Thr Arg Ile Glu His 14050	Ile Asn Ala Pro Arg Val Gly Val 14055
Asp Gly 14060	Tyr Leu Ala Ala Leu 14065	Gly Arg Tyr Leu Gln Phe His Glu 14070
Asp Arg 14075	Arg Ile Pro Ile Pro 14080	Glu Thr Arg His Met Thr Leu His 14085
Ser Asp 14090	Thr Lys Ile Asp Arg 14095	Ala Gln Thr Pro Met Asn Leu Leu 14100
Gln Asp 14105	Glu Ala Ala Leu Thr 14110	Ala Leu Lys Ile Gly Asn Trp Met 14115
Asn Asp 14120	Val Gly Val Ala Leu 14125	Ser Val Asn Leu Glu 14130

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<211> 328
<212> PRT
<213> *Mycobacterium ulcerans*

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<223> Amino acid sequence of the protein encoded by mup045 gene.

<400> 10

Val Ile Trp Asn Asp Ile Tyr Ile Ser Gly Thr Gly Arg Phe Ile Pro
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Ser Met Arg Pro Ile Asn Asp Ile Gln Val Asp Gly Val Pro Asn Asp
20 25 30

His Thr Ile Val Gln Ser Asp Tyr Ile Ser Phe Thr Glu Ala Asp Glu
35 40 45

Pro Ala Thr Val Met Ala Thr Arg Ala Ala Thr Glu Ala Leu Thr Thr
50 55 60

Ser Glu Leu Val Ser Ala Asp Val Gly Val Leu Ile Tyr Ala Ala Ile
65 70 75 80

Ile Gly Asp Ala His His Phe Ala Pro Val Cys His Val Gln Arg Val
85 90 95

Leu Arg Ala Pro Asp Ala Leu Ala Phe Glu Leu Ser Ala Ala Ser Asn
100 105 110

Gly Gly Thr Gln Gly Ile Ala Val Ala Ala Asn Leu Met Thr Ala Asp
115 120 125

Ala Ser Val Lys Ala Ala Leu Val Cys Thr Ala Tyr Arg His Pro Ile
130 135 140

Asp Ile Ile Ser Arg Trp Ser Ser Gly Met Val Phe Gly Asp Gly Ala
145 150 155 160

Ala Ala Ala Val Leu Ser Arg Asp Gly Gly Met Val Arg Leu Ile Ser
165 170 175

Gly Tyr His Gly Ser Leu Pro Glu Leu Glu Val Leu Ala Arg Asn Arg
180 185 190

Ser Asn Glu Arg Leu Gly Phe Val Leu Pro Asp Val Gly Leu Gly Lys

Arg Ala Ile Gly Pro Val Val Ser Ser Tyr Gly Thr His Leu Val Val
50 55 60

Ser His Ala Ile Ala His Glu Leu Leu Arg Ser Glu Asp Phe Glu Val
65 70 75 80

Val Ser Leu Gly Ser Asn Leu Pro Ala Pro Met Arg Trp Leu Glu Arg
85 90 95

Arg Thr Arg Asp Asp Thr Pro His Leu Leu Leu Pro Pro Ser Leu Leu
100 105 110

Ala Val Glu Pro Pro Asn His Thr Arg Tyr Arg Lys Ala Val Ser Ser
115 120 125

Val Phe Thr Pro Lys Ala Val Ala Gly Leu Arg Asp His Val Glu Glu
130 135 140

Thr Ala Ser Ala Leu Leu Asp Gln Leu Thr Asp Gln Ala Ser Ala Val
145 150 155 160

Asp Ile Ile Ala Arg Tyr Cys Ser Gln Leu Pro Val Ala Val Ile Cys
165 170 175

Asp Ile Leu Gly Val Pro Ser Arg Asp Arg Asn Arg Val Leu Lys Phe
180 185 190

Gly Gln Leu Ala Gly Pro Cys Leu Asp Phe Gly Leu Thr Trp Arg Gln
195 200 205

His Gln Gln Val Arg Gln Gly Leu Gln Gly Leu His Phe Trp Ile Thr
210 215 220

Glu His Leu Glu Glu Leu Arg Ser Asn Pro Gly Asp Asp Leu Met Ser
225 230 235 240

Gln Met Ile His Ala Ser Glu Asn Gly Ser Ser Glu Thr His Leu His
245 250 255

Ala Thr Glu Val Arg Met Ile Gly Leu Val Leu Gly Ala Ser Phe Ala
260 265 270

Thr Thr Met Asp Leu Leu Gly Asn Gly Ile Gln Val Leu Leu Asp Ala
275 280 285

Pro Glu Leu Arg Asp Ala Leu Ser Gln Arg Pro Gln Leu Trp Pro Asn
290 295 300

Ala Val Glu Glu Ile Leu Arg Leu Glu Pro Pro Val Gln Leu Ala Gly
 305 310 315 320

Arg Met Ala Arg Lys Asp Thr Glu Val Ala Gly Thr Ala Ile Lys Arg
 325 330 335

Gly Gln Leu Val Ala Ile Tyr Leu Gly Ala Val Asn Arg Asp Pro Ser
 340 345 350

Val Phe Ala Asp Pro His Arg Phe Asp Ile Thr Arg Ala Asn Ala Asn
 355 360 365

Arg His Leu Ala Phe Ser Gly Gly Arg His Phe Cys Leu Gly Ala Ala
 370 375 380

Leu Ala Arg Val Glu Gly Glu Val Gly Leu Arg Met Leu Phe Glu Arg
 385 390 395 400

Phe Pro Asp Val Arg Ala Ala Gly Pro Gly Asn Arg Arg Asp Thr Arg
 405 410 415

Thr Leu Arg Gly Trp Ser Gln Leu Pro Val Gln Leu Gly Ala Ala Arg
 420 425 430

Ser Met Ala Ile Arg
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<210> 12
 <211> 301
 <212> PRT
 <213> Mycobacterium ulcerans

<220>
 <223> Amino acid sequence of the protein encoded by mup038 gene.

<400> 12

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Val Ala Met Ser Ala Leu Val Ala Glu Pro Asp Gln Glu Pro Lys Ala
 20 25 30

Val Ile Leu Ala Leu His Gly Gly Ala Thr Asn Ala Arg Tyr Phe Asp
 35 40 45

Cys Pro Gly His Arg Ala Leu Ser Leu Leu His Thr Gly Ala Ala Ala
 50 55 60

Gly Phe Thr Val Val Ala Leu Asp Arg Pro Gly Tyr Gly Ser Ser Ala
 65 70 75 80

Gly Asp Pro Asp Ala Met Asn Arg Pro His Gln Arg Ala Ala Leu Ala
 85 90 95

Tyr Gly Ala Leu Asp Arg Ile Leu Ala Gln Arg Pro Arg Gly Ala Gly
 100 105 110

Val Phe Ile Met Gly His Ser Asn Gly Cys Glu Leu Ala Met Trp Met
 115 120 125

Ala Thr Glu Thr Arg Gly Ala Glu Leu Leu Gly Ile Glu Leu Ala Gly
 130 135 140

Thr Gly Trp His Tyr Gln Pro Glu Ala Arg Glu Ile Leu Thr Thr Ala
 145 150 155 160

Thr Gly Glu His Arg Trp Val Gly Leu Tyr Asp Leu Leu Trp His Pro
 165 170 175

Gln Arg Leu Tyr Pro Pro Glu Val Leu Asn Ala Ala Ile Ile Ser Ser
 180 185 190

Ser Ala Pro Ala Tyr Glu Glu Gln Met Met Ala Asp Trp Thr Arg Arg
 195 200 205

Thr Phe Leu Glu Leu Val Pro Ala Val Arg Val Pro Val His Phe Ser
 210 215 220

Ile Ala Gln His Glu Lys Val Trp Gln Arg Asp Ser Ser Ala Leu Asp
 225 230 235 240

Glu Ile Ala Val Leu Phe Ser Gly Ala Pro Arg Phe Ile Leu His Glu
 245 250 255

Gln Pro Glu Ala Gly His Asn Ile Ser Leu Gly His Thr Ala Gly Asp
 260 265 270

Tyr His Thr Thr Val Leu Ser Phe Val Gln Gln Cys Leu Ala Glu Arg
 275 280 285

Leu Ala Asn Ala Gln Gln Asp Val Asp Leu Ala Ala Glu
 290 295 300

